# WBS DICTIONARY

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| 01 | SUBSTRUCTURE<br>This system includes all work below the lowest floor construction (usually slab on grade) and the enclosing horizontal and vertical elements required to form a basement, together with the necessary mass excavation and backfill. | SF | m2 | Footprint area at grade |
| 01 01 | STANDARD FOUNDATIONS<br>Continuous footings, spread footings, grade beams, foundation walls, pile caps, and column piers. | SF | m2 | Footprint area at grade |
| 01 01 01 | WALL FOUNDATIONS<br>A. Continuous Footings - Assemblies include excavation, hand shaped bottom, compacted backfill, formwork and keyway, reinforcing steel, concrete, and screed finish.<br><br>B. Foundation Walls - Include work items associated with CIP foundation walls, grade beams, or CMU walls. Assemblies include excavation, compacted backfill, formwork, reinforcing steel, concrete or CMU, and wall finish. | LF | m | Length of footings and/or wall foundations |
| 01 01 02 | COLUMN FOUNDATIONS AND PILE CAPS<br>A. Spread Footings - Individual or part of continuous piers footing. Assemblies include excavation, backfill and compaction, formwork, reinforcing steel, and concrete and screed finish. If structural steel columns sit directly on spread footings, anchor bolts are included in this assembly.<br><br>B. Pile Caps - Assemblies include excavation if required (normally due to installation of piles, the subgrade is at desired level for pile cap), hand shaped bottom, compacted backfill, formwork, reinforcing steel, and concrete and screed finish. If structural steel columns sit directly on pile cap, anchor bolts are included | EA | EA | Number of footings, pile caps and/or piers |

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| | in this assembly.<br><br>C. Column Piers - Assemblies include formwork, reinforcing steel, concrete or CMU, finish, break ties and patch, and set anchor bolts. | | | |
| 01 01 9X | OTHER STANDARD FOUNDATIONS<br>Standard foundations not described by the assembly categories listed above. | XX | XX | |
| 01 02 | SPECIAL FOUNDATION CONDITIONS<br>All work associated with special foundations including piles, caissons, and any other special foundation situation. | SF | m2 | Footprint area at grade |
| 01 02 01 | PILE FOUNDATIONS<br>CIP concrete piles, pre-cast concrete piles, steel pipe piles, steel H piles, step-tapered steel pile, and treated wood piles. Applicable assemblies would include the material for piles, pile driving, and piles cut off if required. The unit of measurement at the assembly level is VLF. | SF | m2 | Footprint area at grade |
| 01 02 02 | CAISSONS<br>Drilled Caissons - Assemblies include drilling caissons, steel casings if required, reinforcing steel, bell bottom excavation, concrete, and loading and hauling of excavated material. The unit of measurement at the assembly level is VLF. | SF | m2 | Footprint area at grade |
| 01 02 03 | UNDERPINNING<br>Underpinning is the provision of permanent support for existing buildings by extending their foundations to a new, lower level containing the desired bearing stratum. Assemblies include excavation, backfill, and underpinning materials. | LF | m | Length of underpinning |
| 01 02 04 | DEWATERING<br>Dewatering is the removal of water from excavations. The two principle methods of dewatering are by pump or by a system involving the sinking of a series of well points around the area and extracting the water by suction pump. Assemblies would include pumps or well points and all | SF | m2 | Dewatered area |

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| | associated dewatering materials and equipment. | | | |
| 01 02 05 | RAFT FOUNDATIONS<br>Raft foundations or spread foundations consist of a solid slab of heavily reinforced concrete covering the entire building footprint area. | SF | m2 | Area of raft foundation |
| 01 02 06 | PRESSURE INJECTION GROUTING<br>Assemblies provided for injecting cement grout for foundation stabliza-tion. | SF | m2 | Footprint area at grade |
| 01 02 9X | OTHER SPECIAL FOUNDATION CONDITIONS<br>These could include cofferdams, soil compaction foundations, and other special foundations. Assemblies would include all material and labor necessary to perform the work for the special foundation condition. | XX | XX | |
| 01 03 | SLAB ON GRADE<br>A slab poured on earth, whether on undisturbed or filled soil. | SF | m2 | Footprint area at grade |
| 01 03 01 | STANDARD SLAB ON GRADE<br>Standard slab on grade is supported by compacted earth or gravel fill. The soil bearing capacity is sufficient to support the slab. Assemblies include fine grade, gravel fill, edge forms, termite treatment (interior slabs only), vapor barrier, reinforcing, expansion joints, control joints, and finish and curing. Assemblies are based on thickness of slab. | SF | m2 | Area of slab |
| 01 03 02 | STRUCTURAL SLAB ON GRADE<br>A structural slab on grade is not supported by compacted earth or gravel fill. The soil bearing capacity is insufficient to support the slab. A structural slab is generally a minimum of 8 inches thick and will be rein-forced with reinforcing bars rather than welded wire fabric. Assemblies include fine grade, gravel fill, edge forms, termite treatment (interior slabs only), vapor barrier, rein-forcing, expansion joints, control | SF | m2 | Area of slab |

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| | joints, and finish and curing. Assemblies are based on thickness of slab | | | |
| 01 03 03 | INCLINED SLAB ON GRADE<br>An included slab on grade is a slab that is poured on an incline. An example would be an inclined loading dock slab and associated ramps. Assemblies include fine grade, gravel fill, edge forms, termite treatment (interior slabs only), vapor barrier, reinforcing finish and curing. Assemblies are based on thickness of slab. | SF | m2 | Area of slab |
| 01 03 04 | TRENCHES<br>Cast-in-place trenches. Assemblies include excavation, hand shaped bottoms, compacted backfill, formwork, reinforcing steel, concrete, and concrete finish. Examples include trench drains and dust trenches. | LF | m | Length of trench |
| 01 03 05 | PITS AND BASES<br>Cast-in-place pits and bases. Assemblies include excavation, hand shaped bottoms, compacted backfill, formwork, reinforcing steel, concrete, and concrete finish. Examples include elevator pits, dock leveler pits, oil change pits, and bases for equipment. | EA | EA | Number of pits and bases |
| 01 03 06 | FOUNDATION DRAINAGE<br>Foundation drainage directly associated with draining the foundation. This category does not include storm drainage pipe for site. It would include drain pipe or drain tile at foundation or basement for specific | LF | m | Length of foundation |
| 01 03 06 | purpose of draining foundation or basement. Assemblies would include excavation, hand shaped bottom, gravel, compacted backfill, and drain pipe, including accessories. | | | |
| 01 03 9X | OTHER SLAB ON GRADE<br>Slab on grade not described by the assembly categories listed above. | XX | XX | |
| 01 04 | BASEMENT EXCAVATION<br>Excavation work associated with constructing a basement. | CY | m3 | Volume of excavation |

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| 01 04 01 | EXCAVATION FOR BASEMENTS<br>All excavation, stockpiling, and hauling associated with basement excavations are included in this assembly. | CY | m3 | Volume of excavation |
| 01 04 02 | STRUCTURE BACKFILL AND COMPACTION<br>All backfill including hauling in of suitable soils and all necessary compaction is included in this assembly. | CY | m3 | Volume of backfill |
| 01 04 03 | SHORING<br>This type of shoring is to resist horizontal pressure and not intended to carry vertical loads. Assemblies would include sheet piling or other material and labor used to hold back earth around the perimeter of an excavation. | SF | m2 | Contact area of that which is shored |
| 01 04 9X | OTHER BASEMENT EXCAVATION<br>Basement excavation not described by the assembly categories listed above. | XX | XX | |
| 01 05 | BASEMENT WALLS | SF | m2 | Area of wall |
| 01 05 01 | BASEMENT WALL CONSTRUCTION<br>This includes work items associated with CIP foundation walls or CMU walls and penetrations. Assemblies include formwork, reinforcing steel, concrete or CMU, and wall finish and curing. | SF | m2 | Area of wall |
| 01 05 02 | MOISTURE PROTECTION<br>This assembly would be based on the type and square footage of waterproofing used on the foundation wall. | SF | m2 | Area of wall moisture protection |
| 01 05 03 | BASEMENT WALL INSULATION<br>This assembly would be based on the type and square footage of insulation used on the foundation wall. | SF | m2 | Area of wall insulation |
| 01 05 04 | INTERIOR SKIN<br>Assemblies include materials used to cover the interior side of exterior walls, i.e., paint, sheetrock, wood, or metal paneling, etc. | SF | m2 | Area of skin |
| 01 05 9X | OTHER BASEMENT WALLS<br>Basement walls not described by the | XX | XX | |

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| | assembly categories listed above. | | | |
| 02 | SUPERSTRUCTURE<br>This system includes all structural slabs, and decks and supports within basements and above grade. Note that the structural work will include both horizontal items (slabs, decks, etc.) and vertical structure components (columns and interior structural walls). Exterior load bearing walls are not included in this system but in System 03, Exterior Walls. | SF | m2 | Area of supported floors |
| 02 01 | FLOOR CONSTRUCTION<br>This construction can be wood, concrete, CMU, steel frame, etc. | SF | m2 | Area of supported floors |
| 02 01 01 | STRUCTURAL FRAME<br>The structural frame could consist of structural steel including columns, beams, joists, and all associated items. It could be a concrete frame utilizing concrete or masonry columns and concrete girders and beams. The structural frame could be wood columns with wood beams or wood trusses. The structural frame could be a combination of the above. For example, concrete or masonry columns with structural steel beams and joists. All associated work items should be included in each assembly. Separate assemblies would be used for different types of construction. The unit of measure at the assembly level is the square footage of the supported area. Decks and slabs are not included in this assembly. | SF | m2 | Area of supported floors |
| 02 01 02 | STRUCTURAL INTERIOR WALLS<br>Assemblies would be CIP or CMU walls or other structural interior walls. The assemblies would include the labor and material required to perform the construction tasks associated with the type of wall. | SF | m2 | Area of walls |
| 02 01 03 | FLOOR DECKS AND SLABS<br>Slabs above grade should be broken into assemblies according to their particular type of construction (i.e., flat slab, pan slab, pre-cast or pre-stressed slab, four-way slab, slabs on metal or wood decking with concrete fill, etc.). All | SF | m2 | Area of supported floors |

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| | associated work items should be included in each assembly. | | | |
| 02 01 04 | BALCONY CONSTRUCITON<br>Balconies above grade should be broken into assemblies according to their particular type of construction. All associated items including handrails should be included in the assembly. | SF | m2 | Area of supported balconies |
| 02 01 05 | RAMPS<br>Ramps above grade should be broken into assemblies according to their particular type of construction. All associated items including handrails should be included in the assembly. | SF | m2 | Area of supported ramps |
| 02 01 06 | FLOOR RACEWAY SYSTEMS<br>Under floor or in-slab conduit including conduit and all associated devices. | SF | m2 | Gross floor area |
| 02 01 9X | OTHER FLOOR CONSTRUCTION<br>Any type of special floor construction not included above would fall in this category. All associated work items would be included in the assembly. | XX | XX | |
| 02 02 | ROOF CONSTRUCTION<br>This construction is similar to floor construction except that it applies to the framework supporting the roof and roof decks. (See also System 04 Roofing.) | SF | m2 | Area of supported roof |
| 02 02 01 | STRUCTURAL FRAME<br>The structural frame could consist of structural steel including columns, beams, joists, and all associated items. It could be a concrete frame utilizing concrete or masonry columns and concrete girders and beams. The structural frame could be wood columns with wood beams or wood trusses. The structural frame could be a combination of the above. For example, concrete or masonry columns with structural steel beams and joists. All associated work items should be included in each assembly. Separate assemblies would be used for different types of construction. The unit of measure at the assembly level is the square footage of the supported area. Decks and slabs are not | SF | m2 | Area of supported roof |

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| | included in this assembly. | | | |
| 02 02 02 | STRUCTURAL INTERIOR WALLS<br>Assemblies would be CIP or CMU walls or other structural interior walls. The assemblies would include the labor and material required to perform the construction tasks associated with the type of wall. | SF | m2 | Area of walls |
| 02 02 03 | ROOF DECKS AND SLABS<br>Roof decks and slabs should be broken into assemblies according to their particular type of construction (i.e., flat slab pan slab, pre-cast or prestressed slab, four-way slab, slabs on metal or wood decking with concrete fill, etc.). All associated work items should be included in each assembly. | SF | m2 | Area of supported roof |
| 02 02 04 | CANOPIES<br>Canopies should be broken into assemblies according to their particular type of construction (i.e., flat slab, pan slab, pre-cast or pre-stressed slab, four-way slab, slabs on metal or wood decking with concrete fill, etc.). All associated work items should be included in each assembly. | SF | m2 | Area of supported canopies |
| 02 02 9X | OTHER ROOF SYSTEMS<br>Any type of special roof construction not included above would fall into this category. All associated work items would be included in the assembly. | SF | m2 | Area of supported roof |
| 02 03 | STAIR CONSTRUCTION<br>All work items associated with interior and exterior stairs. A flight of stairs is considered to be all the treads and risers with landings required to travel from one floor to the next. | FLT | FLT | Number of flights |
| 02 03 01 | INTERIOR STAIR STRUCTURE<br>Assemblies include interior stairs. Handrails, finishes, and all associated work items are included in the assembly. | VLF | VLM | Total Vertical Linear Distance |
| 02 03 02 | EXTERIOR STAIR STRUCTURE<br>Assemblies include exterior stairs which are in unheated spaces and exposed to the weather. Handrails, finishes, and all associated work items are included in the assembly. | VLF | VLM | Total Vertical Linear Distance |

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| 02 03 9X | OTHER STAIR CONSTRUCTION<br>Stair construction not described by the assembly categories listed above. | XX | XX | |
| 03 | EXTERIOR CLOSURE<br>This system consists of the exterior facing of the facility which includes all vertical and horizontal exterior closure features excluding roof (See System 04, Roof). Load bearing exterior walls will be included here and not in System 02, Superstructure. Structural frame elements at exterior such as columns, beams, spandrels, etc., would be included in Superstructure with only the applied exterior finishes (i.e., paint, stucco, etc.) being included here. Finishes to the inside face of walls which are not an integral part of the wall construction will be included in System 06, Interior Finishes. | SF | m2 | Area of exterior walls |
| 03 01 | EXTERIOR WALLS<br>All material associated with exterior wall construction. | SF | m2 | Area of exterior walls |
| 03 01 01 | EXTERIOR SKIN<br>Assemblies would include material contained in exterior closure wall. Materials used for interior finishes on exterior walls are not included in this<br><br>assembly. For example, if the exterior skin<br>is masonry with brick veneer and the interior side of this masonry wall is sheetrock. applied on metal furring strips, the masonry wall is included in this assembly and the furring strips and sheetrock are categorized as Interior Skin 04 01 03. | SF | m2 | Area of exterior walls |
| 03 01 02 | INSULAITON AND VAPOR BARRIER<br>Assemblies include all types of insulation associated with the exterior wall. Rigid, batt and poured insulation should be<br>separated into different assemblies. | SF | m2 | Area of insulation |
| 03 01 03 | INTERIOR SKIN<br>Assemblies include materials used to cover the interior side of exterior walls, | SF | m2 | Area of interior skins |

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| | i.e., paint, sheetrock, wood, or metal paneling, etc. | | | |
| 03 01 04 | PARAPETS<br>Assemblies include materials used in association with parapets. Parapets are low walls or railings usually along the edge<br>of a roof or balcony. | LF | m | Length of parapets |
| 03 01 05 | EXTERIOR LOUVERS AND SCREENS<br>Assemblies include louvers and screens which are located in exterior walls. The unit of measure at the assembly level is each. | SF | m2 | Area of louvers and screens |
| 03 01 06 | SUN CONTROL DEVICES (EXTERIOR)<br>Assemblies include awnings, shades, and solar panels attached to exterior of building. A separate assembly should be used for each type of sun control device. | SF | m2 | Area of sun control devices |
| 03 01 07 | BALCONY WALLS AND HANDRAILS<br>Assemblies would include materials associated with balcony walls and handrails. | LF | m | Length of walls or handrails |
| 03 01 08 | EXTERIOR SOFFITS<br>Assemblies would include all associated materials which make up the soffit and supports for the soffit. Typical materials would include wood, aluminum, exterior grade gypboard, stucco, etc. | SF | m2 | Area of soffits |
| 03 01 09 | EXTERIOR FENCING<br>Exterior fences used for security purposes immediately adjacent to the building such as fences at a loading dock or used instead of an exterior wall for a covered storage shed. Assemblies would include materials associated with all types of fencing. Note that perimeter fencing that is typically more than 5' from the building exterior is included in sitework rather than in this system. | LF | m | Length of fence |
| 03 01 9X | OTHER EXTERIOR WALLS<br>Exterior walls not described by the assembly categories listed above. | XX | XX | |

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| 03 02 | EXTERIOR WINDOWS<br>All windows located in exterior walls or exterior skin. | SF | m2 | Area of windows |
| 03 02 01 | WINDOWS<br>Fixed or operable windows located in exterior walls or exterior skin. Assemblies would include frames, glazing, caulking and other associated work. | SF | m2 | Area of windows |
| 03 02 02 | STOREFRONTS<br>Fixed storefronts including associated doors in exterior walls or exterior skin. Assemblies would include frames, glazing, caulking, and other associated work. | SF | m2 | Area of storefronts |
| 03 02 03 | CURTAIN WALLS<br>This applies to glass curtain walls and spandrel glass in exterior walls or exterior skin. Assemblies would include frames, glazing, caulking, and other associated work. | SF | m2 | Area of curtain walls |
| 03 02 9X | OTHER EXTERIOR WINDOWS<br>Exterior windows not described by the assembly categories listed above. | XX | XX | |
| 03 03 | EXTERIOR PERSONNEL DOORS<br>All doors located in exterior walls or exterior skin. | EA | EA | Number of doors |
| 03 03 01 | GLAZED DOORS<br>Assemblies include all glazed exterior doors with glass, frames, hardware, locking devices, and thresholds. | EA | EA | Number of doors |
| 03 03 02 | SOLID DOORS<br>Assemblies include all exterior solid doors, hollow metal or wood with frames, hardware locking devices, and door finish. | EA | EA | Number of doors |
| 03 03 03 | REVOLVING DOORS<br>Assemblies include all revolving doors at exterior of the facility. | EA | EA | Number of doors |
| 03 03 9X | OTHER EXTERIOR PERSONNEL DOORS<br>Exterior personnel doors not described by the assembly categories listed above. | XX | XX | |
| 03 04 | EXTERIOR SPECIALTY DOORS | SF | m2 | Area of doors |

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| | This includes overhead and special doors in exterior walls or exterior skin. | | | |
| 03 04 01 | OVERHEAD AND ROLL-UP DOORS<br>Overhead and roll-up doors installed in exterior walls or exterior skin. Assemblies include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each door. | SF | m2 | Area |
| 03 04 02 | HANGAR DOORS<br>Large aircraft doors used on medium and high bay hangars. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work. | SF | m2 | Area of door |
| 03 04 03 | BLAST RESISTANT DOORS<br>Special exterior doors used for blast resistance. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work. | SF | m2 | Area |
| 03 04 04 | GATES<br>Any special type gate used in the exterior wall or exterior skin of the building. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each gate. | SF | m2 | Area |
| 03 04 9X | OTHER SPECIAL DOORS<br>Any special type door used in the exterior wall or exterior skin of the building. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each door, or area of special doors (i.e., hangar doors). | XX | XX | Area |
| 04 | ROOFING | SF | m2 | Gross area of roof |
| 04 01 | ROOFING<br>This system includes all waterproof roof coverings and insulation, together with skylights, hatches, ventilators, and all required trim. In addition to | SF | m2 | Gross area of roof |

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| | roof coverings, the system includes all waterproof membranes and traffic toppings over below-grade enclosed areas, balconies, and the like. | | | |
| 04 01 01 | ROOF COVERINGS<br>Assemblies for roof coverings are separate for different type coverings (i.e., shingle, wood shake, built-up, standing seam, elastomeric, etc.). | SF | m2 | Area of roof covering |
| 04 01 02 | TRAFFIC TOPPINGS AND PAVING MEMBRANES<br>Assemblies could include any type of walkway or work area different from roof covering. These items are usually for the purpose of providing walkways and work areas for roof top equipment. | SF | m2 | Area of topping or membrane |
| 04 01 03 | ROOF INSULATION AND FILL<br>Assemblies include all types of insulation associated with the roof area. | SF | m2 | Area of insulation |
| 04 01 04 | FLASHINGS AND TRIM<br>Assemblies include all flashings associated with the roof, i.e., eave flashing, gable flashing, expansion | SF | m2 | Area of flashings |
| 04 01 05 | ROOFING OPENINGS & SUPPORTS<br>All roof penetrations including roof hatches, skylights, ventilators, etc. | SF | m2 | Area of openings |
| 04 01 06 | GUTTERS AND DOWNSPOUTS<br>Assemblies include all gutters, downspouts, and associated work including splash blocks. | LF | m | Length of gutters and downspouts |
| 04 01 9X | OTHER ROOFING<br>Roofing not described by the assembly categories listed above. | XX | XX | |
| 05 | INTERIOR CONSTRUCTION<br>Construction which takes place inside the exterior wall or exterior skin. The system does not include interior structural walls, which are included in System 02, Superstructure. | SF | m2 | Gross floor area |
| 05 01 | PARTITIONS<br>Includes all interior partitions. | SF | m2 | Area of partitions |
| 05 01 01 | FIXED PARTITIONS | SF | m2 | Area of fixed partition walls |

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| | Interior fixed partitions include metal or wood studs, sheetrock, masonry, and concrete walls. | | | |
| 05 01 02 | DEMOUNTABLE PARTITIONS<br>Assemblies would include all demountable partitions and associated work including tracks and anchoring systems. | SF | m2 | Area of demountable partition walls |
| 05 01 03 | RETRACTABLE PARTITIONS<br>Assemblies would include all retractable or folding partitions and associated work including tracks and anchoring systems. | SF | m2 | Area of retractable partitions |
| 05 01 04 | INTERIOR BALUSTRADES AND SCREENS<br>Assemblies include balustrades (handrails and the row screens of posts that support them) and screens and associated work including tracks and anchoring systems. | LF | m | Length of balustrades and screens |
| 05 01 05 | INTERIOR WINDOWS<br>Fixed or operable windows. Assemblies include frames, glazing, caulking, and other associated work. | SF | m2 | Area of windows |
| 05 01 06 | GLAZED PARTITIONS AND STOREFRONTS<br>Fixed interior glazed partitions including interior storefronts with doors. Assemblies<br>include frames, glazing, caulking, and other associated work. | SF | m2 | Area of partitions and storefronts |
| 05 01 9X | OTHER PARTITIONS<br>Interior partitions not described by the assembly categories listed above. | XX | XX | |
| 05 02 | INTERIOR PERSONNEL DOORS<br>All interior doors. | LEF | LEF | Number of leaves |
| 05 02 01 | STANDARD INTERIOR DOORS<br>Assemblies include all standard interior doors wood or hollow metal with frames, hardware, locks, finish, etc. | LEF | LEF | Number of leaves |
| 5 02 02 | GLAZED INTERIOR DOORS<br>Assemblies include all glazed interior doors with glass, frames, hardware, and locking devices. | LEF | LEF | Number of leaves |

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| 05 02 03 | FIRE DOORS<br>Assemblies include all interior fire doors (B label), including all necessary frames, hardware, closing devices, and alarms associated with door. | LEF | LEF | Number of leaves |
| 05 02 04 | SLIDING AND FOLDING DOORS<br>Assemblies include all sliding and folding doors with frames, hardware, locking devices, tracks, and supporting systems. The unit of measure at the assembly level is each. | SF | m2 | Area of sliding or folding door |
| 05 02 9X | OTHER INTERIOR PERSONNEL DOORS<br>Interior personnel doors not described by the assembly categories listed above. | XX | XX | |
| 05 03 | INTERIOR SPECIALTY DOORS<br>Includes all interior overhead and special doors. | SF | m2 | Area of doors |
| 05 03 01 | OVERHEAD DOORS<br>Overhead doors installed in the interior of a facility. Assemblies include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each door. | SF | m2 | Area of doors |
| 05 03 02 | GATES<br>Any special type gate installed in the interior of a facility. Assemblies include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each gate. | SF | m2 | Area of gates |
| 05 03 9X | OTHER SPECIAL DOORS<br>Any special type door installed in the interior of a facility. Assemblies include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly<br>level is each door. | XX | XX | Area of door |
| 05 04 | INTERIOR SPECIALTIES<br>Most commonly used specialty items. | SF | m2 | Gross floor area |

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| 05 04 01 | COMPARTMENTS, CUBICLES, AND TOILET PARTITIONS<br>Assemblies include individual compartments, cubicles, toilet partitions, and urinal screens. | EA | EA | Number of compartments, cubicles, or toilet partitions |
| 05 04 02 | TOILET AND BATH ACCESSORIES<br>Toilet and bath accessories. For example, soap dispensers, paper holder, towel receptacles, grab bags, bathroom mirrors, etc. | EA | EA | Number of accessories |
| 05 04 03 | CHALKBOARDS AND TACK BOARDS<br>Assemblies include all chalkboards, tack boards, and fastening devices. The unit of measurement at the assembly level is each. | SF | m2 | Area of boards |
| 05 04 04 | IDENTIFYING DEVICES<br>Assemblies would include all signs, plaques, traffic markers, etc. Items are placed in assemblies. | EA | EA | Number of identifying devices |
| 05 04 05 | LOCKERS<br>Assemblies include all types of lockers, either wood or metal, single or double tier. Special bases used for lockers would be included in this assembly. | EA | EA | Number of lockers |
| 05 04 06 | SHELVING<br>Assemblies include all types of shelving with brackets and all supporting materials and finish, if required. | LF | m | Length of shelving |
| 05 04 07 | FIRE EXTINGUISHER CABINETS<br>The assembly would include all types and sizes of fire extinguisher cabinets. Fire extinguishers are not included in this assembly; they are included in 10 04. | EA | EA | Number of fire extinguisher cabinets |
| 05 04 9X | OTHER INTERIOR SPECIALTIES<br>Interior specialties not described by the assembly categories listed above. | XX | XX | Number of specialty items |
| 05 05 | CASEWORK<br>Casework items that are permanently fixed in-place. | SF | m2 | Gross floor area by FSA |
| 05 05 01 | COUNTERS<br>Assemblies include all counters and counter tops with all necessary brackets | LF | m | Area of counters |

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| | and supporting materials and finish, if required. | | | |
| 05 05 02 | CABINETS<br>Assemblies include all cabinetry and millwork items with associated accessories and anchoring devices. Cabinet finish is included in this assembly. Metal cabinets should be a separate assembly from wood cabinets or millwork. | LF | m | Length of cabinets |
| 05 05 03 | CLOSETS<br>The assembly includes all built-in closets with all associated work and finishes. These closets are millwork items or prefabricated coat closets for schools and dormitories. | LF | m | Length of closets |
| 05 05 9X | OTHER CASEWORK<br>Assemblies would include built-in cabinetwork not covered in cabinetwork above. | XX | XX | Length of casework |
| 06 | INTERIOR FINISHES<br>Finishes which are applied to interior surfaces, including the interior skin of exterior walls. | SF | m2 | Area of finished area |
| 06 01 | WALL FINISHES<br>Finishes which are applied to interior walls. | SF | m2 | Area of finished walls |
| 06 01 01 | CONCRETE WALL FINISHES<br>This assembly would include a concrete finish applied directly to an interior wall surface. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem. | SF | m2 | Area of finished walls |
| 06 01 02 | PLASTER WALL FINISHES<br>This assembly includes plaster or stucco applied directly to an interior wall surface. Lath and associated work would be included in this assembly. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem. | SF | m2 | Area of finished walls |
| 06 01 03 | GYPSUM WALLBOARD FINISHES<br>This assembly includes gypsum wallboard applied directly to an interior wall surface. Furring strips or channels are included in | SF | m2 | Area of finished walls |

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| | this assembly. This assembly also includes taping, sanding, finishing, and sheetrock accessories. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem. | | | |
| 06 01 04 | TILE AND TERRAZZO WALL FINISHES<br>This assembly includes tile and terrazzo applied directly to an interior wall surface. Each type of tile would be a separate assembly. | SF | m2 | Area of finished walls |
| 06 01 05 | PAINTING TO WALL<br>Assemblies include painting, spackling, and caulking to surfaces of interior walls. | SF | m2 | Area of painted walls |
| 06 01 06 | WALL COVERINGS<br>Assemblies include wall coverings and protective strips applied to interior walls. | SF | m2 | Area of wall covering |
| 06 01 07 | ACOUSTICAL TILES AND PANELS TO WALLS<br>Assemblies include acoustical tiles and panels with associated work that are applied to interior walls. | SF | m2 | Area of acoustical tiles and panels |
| 06 01 08 | SPECIAL COATINGS TO WALLS<br>Assemblies include any special coatings not included in assembly Categories 06 01 01 through 06 01 07 which are applied to interior wall surfaces. | SF | m2 | Area of special coatings |
| 06 01 9X | OTHER WALL FINISHES<br>Assemblies include finishes to wall types not included above. These include, but are not limited to, different types of shielding and the work and materials associated with<br>each. | XX | XX | Area of other wall finishes |
| 06 02 | FLOORING AND FLOOR FINISHES<br>All flooring and floor finishes applied to interior floors. | m2 | m2 | Area of finished floors |
| 06 02 01 | TILE FLOOR FINISHES<br>Assemblies include ceramic, quarry, and other non-resilient tile floors. | SF | m2 | Area of tile floors |
| 06 02 02 | TERRAZZO FLOOR FINISHES | SF | m2 | Area of terrazzo floors |

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| | Assemblies include terrazzo floors. | | | |
| 06 02 03 | WOOD FLOORING<br>Assemblies include wood floors. | SF | m2 | Area of wood flooring |
| 06 02 04 | RESILIENT FLOORING<br>Assemblies include resilient floors. | SF | m2 | Area of resilient flooring |
| 06 02 05 | CARPETING | SY | m2 | Area of carpeting |
| 06 02 06 | MASONRY AND STONE FLOORING<br>Assemblies include masonry and stone flooring. | SF | m2 | Area of masonry or stone flooring |
| 06 02 07 | ACCESS FLOORING<br>Assemblies include all types of raised flooring, pedestal access floors and other types of access. | SF | m2 | Area of special flooring |
| 06 02 08 | PAINTED AND STAINED FLOORS<br>Assemblies include painted and stained floor surfaces. | SF | m2 | Area of painted and stained floors |
| 06 02 9X | OTHER FLOOR FINISHES<br>Floor finishes not described by the assembly categories listed above. | XX | XX | Area of other floor finishes |
| 06 03 | CEILING AND CEILING FINISHES<br>All ceilings and ceiling finishes applied to interiors. | SF | m2 | Area of ceilings |
| 06 03 01 | EXPOSED CONCRETE FINISHES<br>Assemblies include concrete finishes applied to interior ceilings. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem. | SF | m2 | Area of exposed concrete finish |
| 06 03 02 | PLASTER CEILING FINISHES<br>Assemblies include plaster or stucco finish applied directly to an interior ceiling. Lath and associated work would apply to this assembly. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem. | SF | m2 | Area of plaster ceiling finish |
| 06 03 03 | GYPSUM WALLBOARD CEILING FINISHES<br>Assemblies include gypsum wallboard applied directly to an interior ceiling. Furring strips or channels are included in this | SF | m2 | Area of gypsum ceilings |

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| | assembly if they are applied directly to the ceiling surface. If the gypsum board is applied to a suspended ceiling system, the suspended system would be in Assembly Category 06 03 07. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem. | | | |
| 06 03 04 | ACOUSTICAL CEILING TILES AND PANELS<br>Assemblies include acoustical ceiling tiles and panels. The suspension system, if required, is in Assembly Category 06 03 07. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem. | SF | m2 | Area of acoustical ceilings |
| 06 03 05 | WOOD CELINGS<br>Assemblies include wood ceilings. Different types of wood ceilings should be separated into different assemblies. Suspension systems for wood ceilings are not included in this assembly. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem. | SF | m2 | Area of wood ceiling |
| 06 03 06 | PAINTED AND STAINED CEILINGS<br>Assemblies include painted and stained finished interior ceiling surfaces. | SF | m2 | Area of painted or stained ceilings |
| 06 03 07 | SUSPENSION SYSTEMS<br>This assembly includes any suspension system which is suspended or hung from the structure for the purpose of fastening a ceiling. | SF | m2 | Area of suspension system |
| 06 03 08 | METAL STRIP CEILINGS<br>Assemblies include all metal strip materials applied to ceilings. | SF | m2 | Area of metal ceiling |
| 06 03 9X | OTHER SPECIAL CEILINGS & CEILING FINISHES<br>Special ceilings and ceiling finishes not described by the assembly categories listed above. | XX | XX | Area of special ceilings |
| 07 | CONVEYING SYSTEMS<br>This system includes elevators, | STY | STY | Number of stories |

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| | escalators, pneumatic tube systems, conveyors, chutes, etc. Foundations for these systems are included in Systems 01, Substructure. | | | |
| 07 01 | ELEVATORS | STP | STP | Number of stops |
| 07 01 01 | GENERAL CONSTRUCTION ITEMS<br>Includes construction work, other than conveying system work, which must be performed in conjunction with this type of work to complete the system. | EA | EA | Number of items |
| 07 01 02 | PASSENGER ELEVATORS<br>The unit of measure at the assembly level is each stop. | STP | STP | Number of stops |
| 07 01 03 | FREIGHT ELEVATORS<br>The unit of measure at the assembly level is each stop. | STP | STP | Number of stops |
| 07 01 9X | OTHER ELEVATORS<br>Elevators not described by the assembly categories listed above. | XX | XX | |
| 07 02 | MOVING STAIRS AND WALKS<br>The length of stair or walk is calculated by the length of moving stair or walk plus lift (vertical floor-to-floor | LF | m | Length of stairs or walks |
| 07 02 01 | MOVING STAIRS | LF | m | Length of stairs |
| 07 02 02 | MOVING WALKS | LF | m | Length of walks |
| 07 02 9X | OTHER MOVING STAIRS AND WALKS<br>Moving stairs and walks not described by the assembly categories listed above. | XX | XX | |
| 07 03 | MATERIAL HANDLING SYSTEMS | EA | EA | Each material handling system |
| 07 03 01 | CONVEYOR BELT | EA | EA | Each material handling system |
| 07 03 02 | OVERHEAD CRANES | EA | EA | Each crane |
| 07 03 03 | LIFTS | EA | EA | Each lift |
| 07 03 04 | DUMBWAITERS<br>The unit of measure at the assembly level is each stop. | STP | STP | Number of stops |

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| 07 03 05 | CHUTES | LF | m | Length of chute |
| 07 03 06 | PNEUMATIC TUBE SYSTEMS | EA | EA | Number of systems |
| 07 03 9X | OTHER MATERIAL HANDLING SYSTEMS<br>Material handling systems not described by the assembly categories listed above. | XX | XX | |
| 08 | PLUMBING<br>The plumbing system's primary function is the transfer of liquids and gases. This system includes all water supply and waste items within the building. | EA | EA | Number of fixtures |
| 08 01 | PLUMBING FIXTURES<br>All terminal devices on the domestic plumbing system which have water supplied to the fixture. Hot water heaters, hose bibbs, and special equipment are not counted as a fixture. | EA | EA | Number of fixtures |
| 08 01 01 | WATERCLOSETS | EA | EA | Number of fixtures |
| 08 01 02 | URINALS | EA | EA | Number of fixtures |
| 08 01 03 | LAVATATORIES | EA | EA | Number of fixtures |
| 08 01 04 | SINKS | EA | EA | Number of fixtures |
| 08 01 05 | SHOWERS/TUBS | EA | EA | Number of fixtures |
| 08 01 06 | DRINKING FOUNTAINS AND COOLERS | EA | EA | Number of fixtures |
| 08 01 9X | OTHER FIXTURES<br>Fixtures not described by the assembly categories listed above. | XX | XX | Number of fixtures |
| 08 02 | DOMESTIC WATER SUPPLY<br>This system provides for human health and comfort. The water supply needed is determined by the number of fixtures attached. Hot water heaters, hose bibbs, and special equipment are not counted as a fixture. | EA | EA | Number of fixtures |
| 08 02 01 | PIPES AND FITTINGS<br>Assemblies include all pipe, fittings, and associated work with regard to domestic water supply. The unit of measure at the assembly level is number of fixtures. | EA | EA | Number of fixtures |

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| 08 02 02 | VALVES AND HYDRANTS<br>Assemblies include all valves and hydrants. Hose bibbs are included in this assembly. The unit of measure at the assembly level is number of valves and hydrants. | EA | EA | Number of valves and hydrants |
| 08 02 04 | INSULATION AND IDENTIFICATION<br>Assemblies include insulation used in association with domestic water supply. The unit of measure at the assembly level is number of fixtures. | EA | EA | Number of fixtures |
| 08 02 05 | SPECIALTIES<br>Any other specialty items associated with domestic water supply. All associated work items, including pipes, fittings, valves, insulation, and hook-up should be included in this assembly. The unit of measure at the assembly level is pieces of special equipment. | EA | EA | Pieces of equipment |
| 08 02 9X | OTHER DOMESTIC WATER SUPPLY<br>Domestic water supply not described by the assembly categories listed above. | XX | XX | |
| 08 03 | SANITARY WASTE AND VENT SYSTEM<br>This system provides for human health and comfort. Fixtures include all terminal devices which have a water supply (except water supply equipment and specialties), and also devices that transfer fluids into the sanitary waste system that do not have a water supply. Floor drains (not hub drains) are included as a sanitary waste fixture. | EA | EA | Number of fixtures |
| 08 03 01 | WASTE PIPE AND FITTINGS<br>Assemblies include all pipe, fittings, and associated work with regard to sanitary waste pipe and fittings. The unit of measure at the assembly level is number of fixtures. | EA | EA | Number of fixtures |
| 08 03 02 | VENT PIPE AND FITTINGS<br>Assemblies include all pipe, fittings, and associated work with regard to sanitary vent pipe and fittings. The unit of measure at the assembly level is number of fixtures. | EA | EA | Number of fixtures |

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| 08 03 03 | FLOOR DRAINS<br>Assemblies include all floor drains. Hub drains are considered to be pipe and are not included in this assembly. The unit of measure at the assembly level is number of drains. | EA | EA | Number of drains |
| 08 03 04 | INSULATION AND IDENTIFICATION<br>Assemblies include insulation used in association with sanitary waste and vent system. The unit of measure at the assembly level is number of fixtures. | EA | EA | Number of fixtures |
| 08 03 9X | OTHER SANITARY WASTE AND VENT<br>Sanitary waste and vent not described by the assembly categories listed above. | XX | XX | |
| 08 04 | RAINWATER DRAINAGE SYSTEM<br>Roof drainage system. Gutter and downspouts are not included in this subsystem. | SF | m2 | Area of roof |
| 08 04 01 | PIPE AND FITTINGS<br>Assemblies include pipe and fittings from the roof drains to the discharge points, including supports and other associated work. | LF | m | Length of pipe |
| 08 04 02 | ROOF DRAINS<br>Assemblies include roof drains. The unit of measure at the assembly level is number of drains. | EA | EA | Number of roof drains |
| 08 04 03 | INSULATION AND IDENTIFICATION<br>Assemblies include insulation used in association with rainwater drainage system. | LF | m | Length of pipe insulation |
| 08 04 9X | OTHER RAINWATER DRAINAGE SYSTEM<br>Rainwater drainage system not described by the assembly categories listed above. | XX | XX | |
| 08 05 | PLUMBING EQUIPMENT | EA | EA | Pieces of equipment |
| 08 05 01 | DOMESTIC WATER EQUIPMENT<br>This is equipment associated with the domestic water supply, including fittings and specialties required for hook-up. Assemblies include hot water heaters; water treatment equipment, i.e., water softeners, filters, distillers, | EA | EA | Pieces of equipment |

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| | etc.; pumps directly associated with domestic water supply; and tanks for the potable hot or cold water system. The unit of measure at the assembly level is pieces of equipment. | | | |
| 08 05 02 | SANITARY AND VENT EQUIPMENT<br>This is equipment associated with the sanitary waste system, including fittings and specialties required for hook-up. Assemblies include waste treatment equipment, i.e., comminuters, sluice gates, incinerators, etc.; pumps for sewage ejection; and holding tanks for the domestic waste system. The unit of measure at the assembly level is pieces of equipment. | EA | EA | Pieces of equipment |
| 08 05 03 | RAINWATER DRAINAGE EQUIPMENT<br>This is equipment associated with rainwater drainage, including all fittings and specialties required for hook-up. Assemblies would include pumps and other associated items for drainage of rainwater. | EA | EA | Pieces of equipment |
| 08 05 9X | OTHER SPECIAL PLUMBING EQUIPMENT<br>Special plumbing equipment not described by the assembly categories listed above. | XX | XX | Number of special fixtures |
| 08 06 | SPECIAL PLUMBING SYSTEMS<br>This subsystem includes all special plumbing systems which are not included in 08 01 through 08 05. | EA | EA | Number of special fixtures, etc. |
| 08 06 01 | SPECIAL PIPING SYSTEMS<br>Assemblies include all special pipe and fittings, excluding acid waste pipe and work with regard to special pipe. Medical gas and vacuum fitting, and associated systems piping are included in this category. The unit of measure at the assembly level is number of special fixtures, interceptors, outlets, or systems. | EA | EA | Number of special fixtures, interceptors, |
| 08 06 02 | ACID WASTE SYSTEMS | EA | EA | Number of special fixtures, interceptors, |

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| | Assemblies include all pipe, fittings, special acid waste equipment, and other associated work items with regard to acid waste systems. The unit of measure at the assembly level is number of fixtures, interceptors, outlets, or systems. | | | outlets or systems |
| 08 06 03 | INTERCEPTORS<br>Assemblies include all interceptors. The unit of measure at the assembly level is number of interceptors. | EA | EA | Number of interceptors |
| 08 06 04 | POOL EQUIPMENT<br>Assemblies include pumps and equipment associated with pools, including specialties required for hook-up. The unit of measure at the assembly level is each. | GPM | m3/s | Gallons per minute |
| 08 06 9X | OTHER SPECIAL PLUMBING SYSTEMS<br>Special plumbing systems not described by the assembly categories listed above. | XX | XX | |
| 09 | HVAC<br>This system includes all equipment, distribution systems, controls, and energy supply systems required by the heating, ventilating, and air conditioning system. | MBH | kw | Total MBH capacity of 09 02 and 09 03 |
| 09 01 | ENERGY SUPPLY<br>The energy input to the facility (other than electrical) in the form of fuels or hot and cold water distributed from a central base facility. Energy received from wind or solar power is included in this subsystem. | MBH | kw | Total power of heating system |
| 09 01 01 | OIL SUPPLY SYSTEM<br>Assemblies include storage equipment, transfer equipment, and distribution piping. The unit of measure at the assembly level is each system. | MBH | kw | Calories per gallon |
| 09 01 02 | GAS SUPPLY SYSTEM<br>This category includes both natural gas and LPG. Assemblies include metering and regulation equipment, storage equipment, transfer equipment, and distribution piping. The unit of measure at the assembly level is each system. | MBH | kw | MBH |

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| 09 01 03 | COAL SUPPLY SYSTEM<br>Assemblies include storage equipment, transfer equipment, processing equipment, and the distribution system. The unit of measure at the assembly level is each system. | MBH | kw | Power |
| 09 01 04 | STEAM SUPPLY SYSTEM (FROM CENTRAL PLANT)<br>Assemblies include meters, valves, heat exchangers, fittings, and specialties required for hook-up, and distribution piping, including supports, sleeves, and insulation. The unit of measure at the assembly level is each system. | MBH | kw | Power |
| 09 01 05 | HOT WATER SUPPLY SYSTEM (FROM CENTRAL PLANT)<br>Assemblies include meters, valves, heat exchangers, fittings, and specialties required for hook-up, and distribution piping, including supports, sleeves, and insulation. The unit of measure at the assembly level is each system. | MBH | kw | Power |
| 09 01 06 | SOLAR SYSTEMS<br>Assemblies include collector panels, heat exchangers, storage tanks, pumps, etc., including pipe and fittings required for hook-up. The unit of measure at the assembly level is each system. | MBH | kw | Power |
| 09 01 07 | WIND ENERGY SUPPLY SYSTEM<br>Wind is used to turn a generator which generates electricity. This energy is either stored in a battery or used to generate hot water in an electric boiler. Assemblies would include the required devices to make this a total electromechanical system. The unit of measure at the assembly level is each system. | MBH | kw | Power |
| 09 01 9X | OTHER ENERGY SUPPLY<br>Energy supply not described by the assembly categories listed above. | XX | XX | |
| 09 02 | HEAT GENERATING SYSTEMS<br>This subsystem includes steam, hot water, furnace, and unit heater systems. | MBH | kw | Total Power of heating system |

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| | Fuels include coal, oil, gas and electric unless otherwise noted. | | | |
| 09 02 01 | STEAM BOILERS<br>Assemblies include boilers, expansion tanks, chemical feeders, air separators, pumps, heat exchangers, boiler feed units, etc. This assembly would also include fittings and specialties and the flue stack. The unit of measure at the assembly level is each. | MBH | kw | Power |
| 09 02 02 | HOT WATER BOILERS<br>Assemblies include boilers, expansion tanks, chemical feeders, air separators, pumps, heat exchangers, boiler feed units, etc. This assembly would also include fittings and specialties and the flue stack. The unit of measure at the assembly level is each. | MBH | kw | Power |
| 09 02 03 | FURNACES<br>This is a system that heats air. Assemblies would include furnace and necessary fittings and specialties required for hook-up, including flue and stack. The unit of measure at the assembly level is each. | MBH | kw | Power |
| 09 02 04 | FUEL FIRED UNIT HEATES<br>Assemblies would include unit heaters and the energy supply system hook-up (other than electrical) with all necessary pipe, fittings, and specialties required for hook-up. Flue and stack, if required, are included in this assembly. The unit of measure at the assembly level is each. | MBH | kw | Power |
| 09 02 05 | AUXILIARY EQUIPMENT<br>Assemblies would include any other equipment associated with heat generating systems. The unit of measurement at the assembly level is each. | MBH | kw | Power |
| 09 02 06 | EQUIPMENT THERMAL INSULATION<br>Assemblies include insulation of any component in this subsystem. The unit of measure at the assembly level is each. | SF | m2 | AREA of insulation |
| 09 02 9X | OTHER HEAT GENERATING SYSTEMS<br>Heat generating systems not described | XX | XX | |

by the assembly categories listed above.

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| 09 03 | COOLING GENERATING SYSTEMS<br>Cooling generating equipment of the absorption, centrifugal, reciprocating, and direct expansion types. | TON | kw | Total power of cooling capacity |
| 09 03 01 | CHILLED WATER SYSTEMS<br>Assemblies include condensers, compressors, chillers, pumps, cooling towers, etc., including fittings and specialties required for hook-up. The unit of measure at the assembly level is each. | TON | kw | Power |
| 09 03 02 | DIRECT EXPANSION SYSTEMS<br>Assemblies include condensers, compressors, heat pumps, and refrigerant piping. The unit of measure at the assembly level is each. | TON | kw | Power |
| 09 03 9X | OTHER COOLING GENERATING SYSTEMS<br>Cooling generating systems not described by the assembly categories listed above. | XX | XX | |
| 09 04 | DISTRIBUTION SYSTEMS<br>This includes systems that distribute heated and cooled air, ventilating and exhaust air, hot and chilled water, steam, and glycol heating. | MBH | kw | Power |
| 09 04 01 | AIR DISTRIBUTION, COOLING, AND HEATING<br>Assemblies include air handling units, heating coils, cooling coils, and fittings and specialties required for water hook-up. This assembly also includes duct heaters, filters, humidifiers, supply and return duct work, dampers, fire dampers, supply and return grilles, registers and diffusers, turning vanes, sound traps, and all associated insulation. The unit of measure at the assembly level is MCFM. | MCFM | L/S | Volume of air flow |
| 09 04 02 | STEAM DISTRIBUTION SYSTEMS<br>Assemblies include pipe and fitting, including supports, wall and floor sleeves, and pipe insulation. The unit of measure at the assembly level is MBH. | MBH | kw | Power |

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| 09 04 03 | HOT WATER DISTRIBUTION SYSTEMS<br>Assemblies include pipe and fitting, including supports, wall and floor sleeves, and pipe insulation. The unit of measure at the assembly level is MBH. | MBH | kw | Power |
| 09 04 04 | CHANGE OVER DISTRIBUTION SYSTEMS | MBH | kw | Power |
| 09 04 05 | GLYCOL DISTRIBUTION SYSTEMS<br>Assemblies include pipe and fitting, including supports, wall and floor sleeves, and pipe insulation. The unit of measure at the assembly level is MBH. | MBH | kw | Power |
| 09 04 06 | CHILLED WATER DISTRIBUTION SYSTEMS<br>Assemblies include pipe and fitting, including supports, wall and floor sleeves, and pipe insulation. The unit of measure at the assembly level is tons. | TON | kw | Power |
| 09 04 07 | EXHAUST SYSTEMS<br>Assemblies include duct work, grilles, registers, diffusers, fans, and all associated work. The unit of measure at the assembly<br>level is each system. | MCF | L/S | Volume of air flow |
| 09 04 9X | OTHER DISTRIBUTION SYSTEMS<br>Distribution systems not described by the assembly categories listed above. | XX | XX | |
| 09 05 | TERMINAL AND PACKAGE UNITS<br>This category includes self-contained heating and cooling units. | MBH | Kw | Power |
| 09 05 01 | UNIT VENTILATORS<br>Assemblies include the complete terminal unit and wall sleeve with all controls. | EA | EA | Number of units |
| 09 05 02 | UNIT HEATERS<br>Assemblies include the complete terminal unit and wall sleeve with all controls. | EA | EA | Number of units |
| 09 05 03 | FAN COIL UNITS<br>Assemblies include the complete terminal unit and wall sleeve with all controls. | EA | EA | Number of units |

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| 09 05 04 | FIN TUBE RADIATION<br>Assemblies include the complete terminal unit and wall sleeve with all controls. | EA | EA | Number of units |
| 09 05 05 | ELECTRIC HEATING<br>Assemblies include the complete terminal unit and wall sleeve with all controls. | EA | EA | Number of units |
| 09 05 06 | PACKAGE UNITS<br>Assemblies include complete package units, with integral roof top curbs and all associated devices. Heating system can be selected from hot water, steam coil, or gas furnace and can be a single or multi-zone system. The unit of measure<br>at the assembly level is each. | EA | EA | Number of units |
| 09 05 9X | OTHER TERMINAL AND PACKAGE UNITS<br>Terminal and package units not described by the assembly categories listed above. | XX | XX | |
| 09 06 | CONTROLS AND INSTRUMENTATION<br>Includes devices such as thermostats, timers, sensors, control valves, etc., necessary to operate the system as designed. | MBH | kw | Power |
| 09 06 01 | HVAC CONTROLS<br>Includes devices such as thermostats, timers, sensors, control valves, etc., necessary to operate the total system. The unit of measure at the assembly level is each system. | EA | EA | Power |
| 09 06 02 | INSTRUMENT PANELS<br>Assemblies include all devices that indicate system condition or status, including on/off devices. The unit of measure at the assembly level is each. | EA | EA | Number of panels |
| 09 06 03 | INSTRUMENT AIR COMPRESSORS<br>Assemblies include air compressors, dryers, and distribution tubing (only used with pneumatic control systems). The unit of measure at the assembly level is each. | EA | EA | Number of compressors |

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| 09 06 04 | GAS PURGING SYSTEMS<br>Assemblies include the removal of contaminated or unwanted gases from a structure or pipe. | EA | EA | Number of systems |
| 09 06 9X | OTHER CONTROLS AND INSTRUMENTATION<br>Controls and instrumentation not described by the assembly categories listed above. | XX | XX | |
| 09 07 | SYSTEMS TESTING AND BALANCING<br>This includes operation of all systems to determine capacity and adjustment of water flow in chilled water and hot water systems, air flow of air handling units, supply and exhaust fans and supply, and return and exhaust registers. | MBH | kw | Power |
| 09 07 01 | WATER SIDE TESTING AND BALANCING -<br>HEATING AND COOLING<br>Includes operating and testing of pumps, setting of all flow control valves, and determining system capacity. The unit of measure at the assembly level is each device, i.e., boiler, chiller, fan coil, unit heater. | EA | EA | Number of devices |
| 09 07 02 | AIR SIDE TESTING AND BALANCING - HEATING, COOLING AND EXHAUST SYSTEMS<br>Includes operating and testing of all air handling devices, adjusting of all fans to set rate of air flow, setting all fan motors at desired operation, setting of air flow at all registers, grilles, diffusers, and louvers to deliver design CFM, and testing and calibrating of thermostats to achieve desired space temperature. The unit of measure at the assembly level is each device. | EA | EA | Number of devices |
| 09 07 03 | HVAC COMMISSIONING<br>Final testing of operational system | LS | LS | Lump Sum |
| 09 07 9X | OTHER SYSTEMS TESTING AND BALANCING<br>Systems testing and balancing not de- | XX | XX | |

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| | scribed by the assembly categories listed above. | | | |
| 09 08 | SPECIAL MECHANICAL SYSTEMS<br>This subsystem includes special mechanical systems that are not normally included as part of standard HVAC systems. | EA | EA | Number of special mechanical systems |
| 09 08 01 | GENERAL CONSTRUCTION ITEMS (MECHANICAL)<br>Includes construction work other than mechanical which must be performed in conjunction with the special mechanical system to make the system complete. | SF | m2 | Area of special system |
| 09 08 02 | REFRIGERATION SYSTEMS<br>Includes equipment for refrigeration in a cold storage facility. Both low and medium temperature equipment are included. Assemblies include: Condensing and compressor units, evaporator blowers, refrigerant piping and specialties, heat recovery systems (liquid or gas), heat recovery distribution systems (liquid or gas), and system testing and balancing. | TON | kw | Power |
| 09 08 9X | OTHER SPECIAL MECHANICAL<br>Any other mechanical system not defined in other categories. Assemblies would include special systems and special devices. The unit of measure at the assembly level is each system or device. | XX | XX | Area of special system |
| 10 | FIRE PROTECTION SYSTEMS<br>This system includes standard and special fire protection systems. Fire alarm systems are included in 12 01 01. | SF | m2 | Gross floor area |
| 10 01 | WATER SUPPLY (FIRE PROTECTION)<br>This subsystem includes the water supply equipment and related piping from the equipment to the sprinkler head. | EA | EA | Number of sprinkler heads |
| 10 01 01 | WATER SUPPLY EQUIPMENT AND PIPING<br>Assemblies include alarm valves, flow control valves, pipe and fittings from equipment to sprinkler heads, including all supports and wall or floor sleeves. All equipment including tanks, pumps, | EA | EA | Number of sprinkler heads |

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| | and other associated equipment, fittings, and specialties required for hook-up are in this assembly. The unit of measure at the assembly level is each sprinkler head. | | | |
| 10 02 | SPRINKLERS<br>This subsystem includes sprinkler heads and release devices. | EA | EA | Number of sprinkler heads |
| 10 02 01 | SPRINKLER HEADS AND RELEASE DEVICES<br>The fixture, device, or sprinkler head that releases the water to suppress the fire. The unit of measure at the assembly level is each sprinkler head. | EA | EA | Number of sprinkler heads |
| 10 03 | STANDPIPE SYSTEMS<br>This subsystem includes the complete standpipe system. | EA | EA | Number of sprinkler heads |
| 10 03 01 | STANDPIPE EQUIPMENT AND PIPING<br>Assemblies include standpipe risers and all other piping, fittings, and supports associated with this category. Siamese connections, roof manifolds, cabinets, hoses, racks, and other fire department connections are included in this assembly. All equipment including pumps, tanks, etc. with all required fittings and specialties for hook-up are in this assembly. | EA | EA | Number of sprinkler heads |
| 10 04 | FIRE EXTINGUISHERS<br>This subsystem includes fire extinguishing devices. | EA | EA | Number of extinguishers |
| 10 04 01 | FIRE EXTINGUISHING DEVICES<br>Assemblies include all types of fire extinguishers, i.e., water, dry chemical, carbon dioxide, soda acid, etc. The brackets, sleeves, and supporting devices are included in this assembly. | EA | EA | Number of extinguishers |
| 10 05 | SPECIAL FIRE PROTECTION SYSTEMS<br>This subsystem includes other fire protection systems. | EA | EA | Each system |
| 10 05 01 | OTHER SPECIAL FIRE PROTECTION SYSTEMS<br>Assemblies include other fire protection systems such as halon systems, exhaust hood systems, and special | EA | EA | Each system |

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| | chemical suppression systems. | | | |
| 11 | ELECTRIC POWER AND LIGHTING<br>This system is defined by the electric current used or regarded as a source of power. | AMP | AMP | Gross floor area |
| 11 01 | SERVICE AND DISTRIBUTION<br>This subsystem provides for all electrical devices that are required to deliver the main source of power to the facility and to distribute this power to subpanels. | AMP | AMP | Gross floor area |
| 11 01 01 | MAIN TRANSFORMERS<br>Overhead or underground transformers used for primary electrical service. Assemblies include transformers, pad, trenching, and backfill. | AMP | AMP | Number of transformers |
| 11 01 02 | SECONDARY<br>Transformers fed from protection equipment on the building side of primary transformer. Assemblies include transformers, conduit, conduit support, and wire. | AMP | AMP | Gross floor area |
| 11 01 03 | MAIN SWITCHBOARDS<br>This includes the protection equipment and metering devices for main distribution. Assemblies include main distribution panel, breaker, fuses, and meters. | AMP | AMP | Gross floor area |
| 11 01 04 | INTERIOR DISTRIBUTION TRANSFORMERS<br>This includes the interior step-down or buck boost transformers. | AMP | AMP | Gross floor area |
| 11 01 05 | PANELS<br>Branch circuit panelboards. Assemblies include panelboard, breakers, conduit, and wire. | AMP | AMP | Gross floor area |
| 11 01 06 | ENCLOSED CIRCUIT BREAKERS<br>Over current protection device enclosed in its own housing. Assemblies include enclosed circuit breaker, conduit, and wire. | AMP | AMP | Gross floor area |
| 11 01 07 | MOTOR CONTROL CENTERS<br>This is a cabinet in which motor starters and operation devices are | AMP | AMP | Gross floor area |

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| | contained. Assemblies include the motor control center cabinet, motor starters, contacts, switches, conduit, wire, and all associated items. | | | |
| 11 01 9X | OTHER SERVICE AND DISTRIBUTION<br>Service and distribution not described by the assembly categories listed above. | XX | XX | |
| 11 02 | LIGHTING AND BRANCH WIRING<br>Lighting systems including light fixtures and devices, i.e., switches, receptacles, and equipment connections. | SF | m2 | Floor area |
| 11 02 01 | BRANCH WIRING<br>This assembly includes switches, receptacles, equipment connections, conduit, and wire. | EA | EA | Floor area |
| 11 02 02 | LIGHTING EQUIPMENT<br>This assembly includes fixtures, conduit, wire, and switching devices. | EA | EA | Floor area |
| 11 02 9X | OTHER LIGHTING AND BRANCH WIRING<br>Lighting and branch wiring not described by the assembly categories listed above. | XX | XX | |
| 12 | ELECTRICAL SYSTEMS<br>Electrical systems which are not provided for in System 11. | SF | m2 | Gross floor area |
| 12 01 | COMMUNICATION, SECURITY AND ALARM SYSTEMS<br>This subsystem includes provisions for communication devices and alarm protection systems. | SF | m2 | Gross floor area |
| 12 01 01 | FIRE ALARM SYSTEMS<br>Assemblies include wire, conduit, conduit support or fastening systems, fire alarm devices, fire detection devices, safety switches, all electrical connections, and other associated items. | EA | EA | Number of outlets |
| 12 01 02 | NURSE CALL SYSTEMS<br>Assemblies include conduit, wire, speakers, monitoring devices, amplifiers, switches, power system tie-in devices, and detection devices. | EA | EA | Number of outlets |

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| 12 01 03 | TELEPHONE SYSTEMS<br>This system would include central switchboards, telephone sets, underground ducts, and manholes. Assemblies include conduit, wire, backboards, cabinets, outlets, and power supply connections. | EA | EA | Number of outlets |
| 12 01 04 | PUBLIC ADDRESS SYSTEMS<br>Assemblies include conduit, wire, speakers, monitoring devices, amplifiers, switches, power system tie-in devices, and detection devices. | SF | m2 | Gross floor area |
| 12 01 05 | INTERCOMMUNICATIONS SYSTEMS<br>Assemblies include conduit, wire, speakers, monitoring devices, amplifiers, switches, power system tie-in devices, and detection devices. | EA | EA | Number of stations |
| 12 01 06 | CLOCK AND PROGRAM SYSTEMS<br>Assemblies include conduit, wire, power systems tie-in, safety switches, control panels, battery back-up devices, clocks, and outlets. | EA | EA | Number of clocks |
| 12 01 07 | TELEVISION SYSTEMS<br>Assemblies include wire, conduit, grounding, amplifiers, receivers, video equipment, and outlets grouped according to use. | EA | EA | Number of outlets |
| 12 01 08 | SECUITY SYSTEMS<br>Assemblies include wire, conduit, conduit support or fastening systems, security alarm devices, all electrical connections, and other associated items. Intrusion Detection Systems (IDS) are included in this category. | EA | EA | Number of system control panels |
| 12 01 9X | OTHER COMMUNICATIONS AND ALARM<br>SYSTEMS<br>Communications and alarm systems not described by the assembly categories listed above. | XX | XX | |
| 12 02 | SPECIAL ELETRICAL SYSTEMS<br>Systems not described in Subsystem 12 01. | SF | m2 | Gross floor area |

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| 12 02 01 | GENERAL CONSTRUCTION ITEMS (ELETRICAL)<br>Includes construction work other than electrical which must be performed in conjunction with the special electrical system to make the system complete. | EA | EA | Gross floor area |
| 12 02 02 | EMERGENm3 LIGHTING AND POWER<br>Assemblies include fixtures, motors used for power generation, connection, and testing, transfer switches, conduit, wire, battery chargers, batteries, and solar panels. | EA | EA | Gross floor area |
| 12 02 03 | GROUNDING SYSTEMS<br>This includes grounding protection systems. | SF | m2 | Gross floor area |
| 12 02 04 | LIGHTNING PROTECITON<br>Assemblies include lightning protection devices (air terminals, mounting devices), clamps, ground rods, cadwells, conductors, trenching, backfll, and any other items used to ground metal structural frames with conduit and wire. | EA | EA | Gross floor area |
| 12 02 05 | ELECTRIC HEATING<br>Items could include baseboard heaters and wall and ceiling heaters. Assemblies include safety switches, control devices, heaters, conduit, and wire. | SF | m2 | Gross Floor area |
| 12 02 06 | ENERGY MANAGEMENT CONTROL SYSTEMS<br>Assemblies include wire, conduit, conduit support or fastening systems, sensor devices, and all electrical connections. | PTS | PTS | Gross floor area |
| 12 02 9X | OTHER SPECIAL SYSTEMS AND DEVICES<br>Special systems and devices not described by the assembly categories listed above. | XX | XX | |
| 13 | EQUIPMENT<br>This refers to equipment not found in System 05 04 (Interior Specialties). | SF | m2 | Gross floor area |
| 13 01 | FIXED AND MOVEABLE EQUIPMENT<br>This equipment is not likely to be used in every building type. Subsystems 05 04 and 05 05 (Specialties) includes | SF | m2 | Floor area |

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| | those items likely to be found in every building type. | | | |
| 13 01 01 | BUILT-IN MAINTENANCE EQUIPMENT<br>The unit of measure at the assembly level is each. | SF | m2 | Floor area |
| 13 01 02 | CHECKROOM EQUIPMENT<br>All associated work items including keys, tags, and storage cabinets would be included in this assembly. | COA | COA | Number of coat hanging devices |
| 13 01 03 | SEAFOOD SERVICE EQUIPMENT<br>The unit of measure at the assembly level is the total set of equipment needed in the particular functional space area. | | | Seating capacity per meal based on dining |
| 13 01 04 | VENDING EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 05 | WASTE HANDLING EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 06 | LOADING DOCK EQUIPMENT | DCK | DCK | Number of docks |
| 13 01 07 | PARKING EQUIPMENT | CAR | CAR | Pieces of equipment |
| 13 01 08 | MISCELLANEOUS COMMON FIXED AND<br>MOVEABLE EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 09 | WAREHOUSE EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 10 | MEDICAL EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 11 | LABORATORY EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 12 | MORTUARY EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 13 | AUDITORIUM AND STAGE EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 14 | REGISTRATION EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 15 | LIBRARY EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 16 | LAUNDRY EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 17 | SECURITY AND VAULT EQUIPMENT | EA | EA | Pieces of equipment |
| 13 01 9X | OTHER SPECIALIZED FIXED AND MOVEABLE EQUIPMENT<br>Specialized fixed and moveable equipment not described by the as- | XX | XX | Pieces of equipment |

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| | sembly categories listed above. | | | |
| 14 | FURNISHINGS | SF | m2 | Floor area |
| 14 01 | FURNISHINGS | SF | m2 | Floor area |
| 14 01 01 | MODULAR PREFABRICATED FURNITURE | EA | EA | Number of units of prefab furniture |
| 14 01 02 | ART WORK | EA | EA | Pieces of art work |
| 14 01 03 | WINDOW TREATMENT | SF | m2 | Area of window treatment |
| 14 01 04 | SEATING | EA | EA | Number of seats |
| 14 01 05 | RUGS, MATS, AND FURNISHING ACCESSORIES | EA | EA | Number of rugs, mats, or accessories |
| 14 01 06 | DINING ROOM FURNISHINGS Assemblies include dining room furnishings not covered above. | EA | EA | Number of furnishings |
| 14 01 9X | OTHER FURNISHINGS Furnishings not described by the assembly categories listed above. | XX | XX | |
| 15 | SPECIAL CONSTRUCTION Includes all building related items normally specified in CSI MASTERFORMAT Division 12. | SF | m2 | Floor area |
| 15 01 | VAULTS This is a built-in-place vault. Prefabricated safes are not included in this assembly. The unit of measure at the assembly level is each. | SF | m2 | Area of vault |
| 15 02 | INTERIOR SWIMMING POOLS | SF | m2 | Area of pool |
| 15 03 | SPECIAL PURPOSE ROOMS | SF | m2 | Area of room |
| 15 04 | PRE-ENGINEERED BUILDINGS | SF | m2 | Floor area |
| 15 05 | WASHRACKS | SF | m2 | Area of washracks |
| 15 06 | EXTERIOR UTILITY BUILDINGS | SF | m2 | Floor area of exterior building |
| 16 | SELECTIVE BUILDING DEMOLITION | LS | LS | |
| 16 01 | NON-HAZARDOUS SELECTIVE BUILDING DEMOLITION | LS | LS | |

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| 16 01 01 | SUBSTRUCTURE AND SUPERSTRUCTURE | LS | LS | |
| 16 01 02 | EXTERIOR CLOSURE | LS | LS | |
| 16 01 03 | ROOFING | LS | LS | |
| 16 01 04 | INTERIOR CONSTRUCTION AND FINISHES | LS | LS | |
| 16 01 05 | CONVEYING SYSTEMS | LS | LS | |
| 16 01 06 | MECHANICAL SYSTEMS | LS | LS | |
| 16 01 07 | ELECTRICAL SYSTEMS | LS | LS | |
| 16 01 08 | EQUIPMENT AND FURNISHINGS | LS | LS | |
| 16 01 9X | OTHER NON-HAZARDOUS SELECTIVE BUILDING DEMOLITION<br>Non-hazardous selective building demolition not described by the assembly categories listed above. | XX | XX | |
| 16 02 | HAZARDOUS SELECTIVE BUILDING DEMOLITION | LS | LS | |
| 16 02 01 | SUBSTRUCTURE AND SUPERSTRUCTURE | LS | LS | |
| 16 02 02 | EXTERIOR CLOSURE | LS | LS | |
| 16 02 03 | ROOFING | LS | LS | |
| 16 02 04 | INTERIOR CONSTRUCTION AND FINISHES | LS | LS | |
| 16 02 05 | CONVEYING SYSTEMS | LS | LS | |
| 16 02 06 | MECHANICAL SYSTEMS | LS | LS | |
| 16 02 07 | ELECTRICAL SYSTEMS | LS | LS | |
| 16 02 08 | EQUIPMENT AND FURNISHINGS | LS | LS | |
| 16 02 9X | OTHER HAZARDOUS SELECTIVE BUILDING DEMOLITION<br>Hazardous selective building demolition not described by the assembly categories listed above. | XX | XX | |
| 17 | SITE PREPARATION | AC | Hectare | Total area of site |

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| | This system includes assemblies for miscellaneous site work such as clearing and grubbing, demolition and relocation, various earthwork tasks, and other site preparation and cleanup requirements. Hazardous cleanup is not included but is the subject of another WBS. | | | |
| 17 01 | SITE CLEARING<br>This covers the different assemblies and options available for clearing of a site, tree and stump removal, burning, grubbing, chipping, and load and haul assemblies for removal of the cleared material. | AC | Hectare | Area to be cleared |
| 17 01 01 | CLEARING<br>This is the removal of above ground vegetation, including stumps. For a wet site, Low Ground Pressure (LGP) equipment is used. | AC | Hectare | Area cleared |
| 17 01 02 | TREE REMOVAL<br>This is the selective removal of trees on the site. Various options exist for different sizes of trees to be removed. | EA | EA | Each tree |
| 17 01 03 | STUMP REMOVAL<br>This is the selective removal of stumps on the site. Various options exist for different sizes of stumps to be removed. | EA | EA | Each stump |
| 17 01 04 | CHIPPING<br>Chipping is the process of cutting brush into small pieces. This process reduces the bulking factor of the debris is or brush that is to be removed from the site. Assemblies exist for various brush densities. | AC | Hectare | Area of brush to chip |
| 17 01 05 | GRUBBING<br>Grubbing is the removal of sod and other topsoil that contains unsuitable organic material. Various equipment type and size choices exist. Wet grubbing utilizes Low Ground Pressure (LGP) equipment. Hauloff of grubbed material is also included. | AC | Hectare | Area grubbed |
| 17 01 06 | SELECTIVE THINNING<br>This is the selective removal of trees and underbrush without requiring extensive clearing and/or grubbing | AC | Hectare | Area Thinned |

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| | of the site. | | | |
| 17 01 07 | DEBRIS DISPOSAL<br>This is the disposal of the material that has been cleared and grubbed. Loading, hauling, and dump charges are included. | CY | m3 | Volume of material |
| 17 01 9X | OTHER SITE CLEARING<br>Site clearing not described by the assembly categories listed above. | XX | XX | |
| 17 02 | SITE DEMOLITION AND RELOCATION<br>This includes the demolition and/or relocation of structures, pavements, fencing, and underground utilities. Disposal of debris or demolished material, including loading and hauling, is also included. | SY | m2 | Area demolished |
| 17 02 01 | BUILDING MASS DEMOLITION<br>This is the complete demolition of buildings or structures. Options include steel, concrete, masonry, and wood structures. | CF | CF | Interior volume of building |
| 17 02 02 | ABOVE GROUND SITE DEMOLITION<br>This is the demolition of pavements, fencing, and other non-building structures on a site. Pavement includes roads, sidewalks, driveways, and curbs. Fencing types include chain link, barb wire, and wood. | SY | m2 | Area to demolish |
| 17 02 03 | UNDERGROUND SITE DEMOLITION<br>This is the demolition of underground utilities such as piping, manholes, and other non-building underground structures. The unit of measure at the assembly level for piping is LF and for manholes is CY. | SY | m2 | Area to demolish |
| 17 02 04 | DEBRIS DISPOSAL<br>This is the disposal of the demolished material. Loading, hauling, and dump charges are included. | CY | m3 | Volume of material |
| 17 02 05 | BUILDING RELOCATION<br>This is the process of dismantling a structure and reassembling it on a different site. | SF | m2 | Area of building to be relocated |

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| 17 02 06 | UTILITY RELOCAITON<br>To remove and reset. This is the removal and relocation of underground utilities such as steel and concrete pipe. | LF | m | Length of pipe run |
| 17 02 07 | FENCING RELOCATION | EA | EA | |
| 17 02 9X | OTHER SITE DEMOLITION AND RELOCATION<br>Site demolition and relocation not described by the assembly categories listed above. | XX | XX | |
| 17 03 | SITE EARTHWORK<br>Included are assemblies and options for site work such as grading, excavation, filling, compaction, stabilization, etc. | CY | m3 | Volume of material |
| 17 03 01 | GRADING<br>Grading is leveling or flattening of the site in preparation for landscaping or other site construction. Includes unlined stormwater collection ponds. | SY | m2 | Area to be graded |
| 17 03 02 | COMMON EXCAVATION AND DISPOSAL<br>This is excavation for roads, sidewalks, curbs, and trenching for underground utilities. Excavation may be carried out by a variety of equipment sizes and types. Disposal of the excavated material is also included. | CY | m3 | Volume of material to be excavated |
| 17 03 03 | ROCK EXCAVATION AND DISPOSAL<br>This is excavation of rock by explosives. Different equipment selections and load and haul are included. | CY | m3 | Volume of rock to excavate |
| 17 03 04 | FILL AND BORROW<br>This is filling or replacing the material that was removed during excavation. Either the excavated material may be used or soil and sand may be hauled in from off-site. Filling to basements and foundations is included in System | CY | m3 | Volume of material to place |
| 17 03 05 | COMPACTION<br>Compaction is the process of packing the fill material once it is in place. This may be done by machine or hand. As - semblies exist for both hand and | CY | m3 | Volume of material to compact |

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| | machine compaction of soil, sand, and the excavated material. | | | |
| 17 03 06 | SOIL STABILIZATION<br>This is stabilization of the soil-in-place by the addition of lime or cement. | CY | m3 | Volume of soil to stabilize |
| 17 03 07 | SLOPE STABILIZATION<br>This is stabilization of the soil-in-place through the use of rip-rap, gabions, slope paving, or other forms of soil armoring. | SY | m2 | Area of slope |
| 17 03 08 | SOIL TREATMENT<br>Treatment of soil prior to final construction for insect protection or other purposes. | SY | m2 | Area of soil to treat |
| 17 03 09 | SHORING<br>Shoring is the temporary support for existing structures or excavation during construction. | SF | m2 | Area requiring shoring |
| 17 03 10 | TEMPORARY DEWATERING<br>This is the dewatering of the site by wellpoints to lower the groundwater table. This will facilitate excavation in areas with high water tables. | SY | m2 | Area to dewater |
| 17 03 11 | TEMPORARY EROSION CONTROL<br>Interim measures to minimize erosion during construction. | SF | m2 | Area to be protected |
| 17 03 9X | OTHER SITE EARTHWORK<br>Site earthwork not described by the assembly categories listed above. | XX | XX | |
| 17 04 | SITE CLEANUP<br>This includes other site preparation assemblies such as site cleanup that were not covered in the previous subsystems. | SY | m2 | Lump sum |
| 17 04 01 | SITE CLEANUP<br>Covered in this assembly category are assemblies for site and area cleanup and pavement sweeping. Disposal of the debris is also included. | SY | m2 | Area of site to clean |
| 17 04 9X | OTHER SITE CLEANUP<br>Site cleanup not described by the assembly categories listed above. | XX | XX | |

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| 17 9X | OTHER SITE PREPARATION<br>Any site preparation not covered in the subsystems listed above. | XX | XX | |
| 18 | SITE IMPROVEMENTS<br>This includes improvements such as parking lots, sidewalks, roadways, fencing, retaining walls, and landscaping. | SY | m2 | Area of site |
| 18 01 | ROADWAYS<br>This subsystem includes options for access, arterial, or interstate roadways. A variety of pavement types and thickness are available. | SY | m2 | Area of roadway |
| 18 01 01 | BASES AND SUBBASES<br>These are the compacted and prepared gravel or soil layers that are placed prior to the installation of the final surface. The subbase is placed and compacted before the base layer is applied. | SY | m2 | Area of roadway |
| 18 01 02 | DRAINS, INLETS, CURBS AND GUTTERS<br>This is the drainage system for the selected roadway type. Options include curb and gutter drains or area drains with grates. | LF | m | Length of drainage piping |
| 18 01 03 | PAVED SURFACES<br>This is the material that is placed atop the base layer to provide the driving surface. | SY | m2 | Area of roadway |
| 18 01 04 | MARKING AND SIGNAGE<br>This includes roadway signage an pavement painting. Assemblies are included for traffic signs and posts and intersection, crosswalk, or other pavement painting or striping. | SY | m2 | Area of roadway |
| 18 01 05 | GUARDRAILS AND BARRIERS<br>This is any associated guardrails or barriers that are required for the selected roadway type. | LF | m | Length of guardrail or barrier |
| 18 01 06 | RESURFACING<br>This is the placement of an asphalt wearing course over the existing pavement surface. Assemblies exist | SY | m2 | Area of roadway |

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| | for resurfacing of gravel, concrete, and asphalt roadways. | | | |
| 18 01 9X | OTHER ROADWAYS<br>Roadways not described by the assembly categories listed above. | XX | XX | |
| 18 02 | PARKING LOTS<br>These are the areas required for vehicle parking and include different surfaces and drainage options. | SPA | SPA | Number of spaces |
| 18 02 01 | BASES AND SUBBASES<br>These are the compacted and prepared gravel or soil layers that are placed prior to the installation of the final surface. The subbase is placed and compacted before the base layer is applied. | SY | m2 | Area of parking lot |
| 18 02 02 | DRAINS, CURBS AND GUTTERS<br>This is the drainage system of the parking lot. Options include curb drains or area drains with grates. | LF | m | Length of drainage piping |
| 18 02 03 | PAVED SURFACES<br>This is the material that is placed atop the base layer. This provides the driving surface for the parking lot. | SY | m2 | Area of parking lot |
| 18 02 04 | MARKING AND SIGNAGE<br>This is the painting of the parking stalls, signage, etc. | SPA | SPA | Number of spaces |
| 18 02 05 | GUARDRAILS AND BARRIERS<br>Guardrails, barriers, parking stops and other similar devices. | LF | m | Length of guardrail or barrier |
| 18 02 06 | RESURFACING<br>This is the placement of an asphalt wearing course over the existing parking surface. | SY | m2 | Area of parking lot |
| 18 02 9X | OTHER PARKING AREAS<br>Parking areas not described by the assembly categories listed above. | XX | XX | |
| 18 03 | WALKS, STEPS, RAMPS AND TERRACES<br>This subsystem includes options for sidewalks and other small paved areas. | SY | m2 | Area of pavement |

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| 18 03 01 | BASES AND SUBBASES<br>These are the compacted and prepared gravel or soil layers that are placed prior to the installation of the final surface. The subbase is placed and compacted before the base layer is applied. | SY | m2 | Area of pavement |
| 18 03 02 | DRAINS, CURBS AND GUTTERS<br>This is the drainage system of the pavement option chosen. Options are included for curb and gutter drains. | LF | m | Length of drainage piping |
| 18 03 03 | PAVED SURFACES<br>This is the material that is placed atop the base layer to provide the walking or driving surface. | SY | m2 | Area of pavement |
| 18 03 04 | GUARDRAILS AND BARRIERS<br>This is any associated guardrails or barriers that are required. | LF | m | Length of guardrail or barrier |
| 18 03 05 | RESURFACING<br>This is the placement of an asphalt wearing course over the existing pavement surface. | SY | m2 | Area of Pavement |
| 18 03 9X | OTHER WALKS, STEPS, RAMPS, AND TERRACES<br>Walks, steps, ramps, and terraces not described by the assembly categories listed above. | XX | XX | |
| 18 04 | SITE DEVELOPMENT<br>Included are assemblies for on-site construction of fences, retaining walls, playing fields, fountains, and other site improvements. | EA | EA | Each structure |
| 18 04 01 | FENCING AND GATES<br>This includes installation or construction of security, boundary, or barbed wire fencing and all required gates. | LF | m | Length of fence |
| 18 04 02 | RETAINING WALLS<br>These are structures used to prevent the flow or lateral movement of soil. Assemblies exist for cast-in-place concrete retaining walls. | SF | m2 | Area of wall |
| 18 04 03 | EXTERIOR FURNISHINGS<br>This includes the addition of such exterior furnishings as benches, | EA | EA | Each furnishing |

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| | planters, etc. | | | |
| 18 04 04 | SECURITY STRUCTURES<br>This includes the construction or addition of security structures such as guard houses. | EA | EA | Each structure |
| 18 04 05 | SIGNAGE<br>Signs displayed to convey direction or information such as building function or tenant except for signs included in 18 01 04 and 18 02 04. Does not include Roadway and Parking Signage. | EA | EA | Each sign |
| 18 04 06 | FOUNTAINS AND POOLS<br>This includes assemblies for swimming pools and decorative fountains. | EA | EA | Each |
| 18 04 07 | PLAYING FIELDS<br>Playing fields such as baseball or tennis courts as well as backstops, bleachers, and other playing field requirements are included. | EA | EA | Each |
| 18 04 08 | LINED STORMWATER COLLECTION PONDS AND OTHER STORMWATER COLLECTION AND STORAGE STRUCTURES | GAL | GAL | Volume |
| 18 04 9X | MISCELLANEOUS STRUCTURES<br>This includes any other miscellaneous structures not found above or in previous sections. | XX | XX | |
| 18 05 | LANDSCAPING<br>Assemblies are included that improve the appearance of the site by planting, seeding, and sodding. | SY | m2 | Area to be landscaped |
| 18 05 01 | FINE GRADING AND SOIL PREPARATION<br>Fine grading of the site by hand or machine is required to prepare the soil for planting, seeding, or sodding. | SY | m2 | Area of site |
| 18 05 02 | EROSION CONTROL MEASURES<br>Soil erosion or deterioration due to wind, rain or other factors can be controlled or remedied in different ways. This includes slope protection by planting of vegetation or grass and/or placement of manmade | SY | m2 | Area of erosion |

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| | geotextiles. | | | |
| 18 05 03 | TOP SOIL AND PLANTING BEDS<br>Top soil is placed to provide the nutritious soil bed which is required for plants or grass to grow. | SY | m2 | Area of planting bed |
| 18 05 04 | SEEDING AND SODDING<br>This includes the seeding, sodding, fertilizing, watering, and mowing for the grass required on site. | SY | m2 | Area of site |
| 18 05 05 | PLANTINGS<br>This includes the planting of trees, shrubs, and other vegetation for site beautification or improvement. | EA | EA | Each plant |
| 18 05 06 | PLANTERS<br>Planters are exterior decorative containers that contain plants or trees. | EA | EA | Each planter |
| 18 05 07 | IRRIGATION SYSTEMS<br>This includes the underground installation of irrigation systems required for watering of trees, shrubs, and grass or other vegetation. | SY | m2 | Area of site to be watered |
| 18 05 9X | OTHER LANDSCAPING<br>Landscaping not described by the assembly categories listed above. | XX | XX | |
| 18 06 | SPECIAL CONSTRUCTION<br>Heavy construction consists of bridges/ overpasses, railroads, and other large or heavy construction projects. | EA | EA | Each |
| 18 06 01 | BRIDGES<br>Bridges included here are typically small spans of overpasses that are not meant to be used to estimate spans over large bodies of water. Options exist for cast-in-place concrete T beam, precast I beam, precast box, concrete and steel composite, and timber laminated deck bridge structures. | SY | m2 | Area of structure |
| 18 06 02 | RAILROAD SPUR<br>Railroad assemblies exist for 110, 115, and 132 lb. tracks and ties. Turnouts, roadway crossings, derailleurs, stops, and bumpers are also included. | LF | m | Length of track |

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| 18 06 9X | OTHER SPECIAL CONSTRUCTION<br>Any special construction not covered in the above categories. | XX | XX | |
| 18 9X | OTHER SITE IMPROVEMENTS<br>Any site improvements not covered in the subsystems listed above. | XX | XX | |
| 19 | SITE CIVIL/MECHANICAL UTILITIES<br>This includes assemblies for water, sewer, storm sewer, and energy distribution systems. | EA | EA | Each utility |
| 19 01 | WATER SUPPLY AND DISTRIBUTION SYSTEMS<br>This includes installation or construction of water distribution systems and facilities. | LF | m | Length of system |
| 19 01 01 | WELL SYSTEMS<br>This includes installation of wells to include drilling and installing casings, pumps, and valves. | EA | EA | Each system |
| 19 01 02 | POTABLE WATER DISTRIBUTION<br>This includes construction and installation of underground piping and valve boxes and valves. | LF | m | Length of system |
| 19 01 03 | POTABLE WATER STORAGE<br>This includes construction and installation of tanks, both on grade and elevated. | GAL | GAL | Amount stored |
| 19 01 04 | FIRE PROTECTION WATER DISTRIBUTION<br>This includes construction and installation of piping for fire protection only. | LF | m | Length of system |
| 19 01 05 | FIRE PROTECITON WATER STORAGE<br>This includes tanks on grade and elevated for storage of water for fire protection only. | GAL | L | Amount stored |
| 19 01 06 | NON-POTABLE WATER DISTRIBUTION<br>This includes construction and installation of water distribution system not for consumption, such as irrigation or hydro electric power generation and from reservoirs to treatment facilities. | LF | m | Length of system |
| 19 01 07 | PUMPING STATIONS<br>This includes construction and instal- | GPM | L/s | Operating capacity |

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| | lation of pumps, valves, and piping. | | | |
| 19 01 08 | PACKAGED WATER TREATMENT PLANTS<br>This includes installation of completely assembled water treatment plants. | GPD | GPD | Operating capacity |
| 19 01 09 | TRENCHBOXES<br>This includes installation of prefabricated trenchboxes for shoring during installation of piping. | LF | m | Length of trench |
| 19 01 9X | OTHER WATER SUPPLY<br>Water supply not described by the assembly categories listed above. | XX | XX | |
| 19 02 | SANITARY SEWER SYSTEMS<br>This includes all assemblies necessary for sewage collection systems. | LF | m | Length of system |
| 19 02 01 | SANITARY SEWER PIPING<br>This includes installation of piping for collection of sewage. | LF | m | Length of piping |
| 19 02 02 | SANITARY SEWER MANHOLES AND CLEANOUTS<br>This includes installation and construction of manholes and cleanouts in sewage collection systems. | EA | EA | Each manhole or cleanout |
| 19 02 03 | LIFT STATIONS<br>This includes installation and construction of piping and equipment in lift stations. | GPM | L/s | Operating capacity |
| 19 02 04 | PACKAGED SANITARY SEWER TREATMENT<br>PLANTS<br>This includes installation of preassembled sewage treatment plants. | GPD | L/s | Operating capacity |
| 19 02 05 | SEPTIC TANKS<br>This includes installation of prefabricated septic tanks or the construction of septic tanks. | GAL | L | Volume of tank |
| 19 02 06 | DRAIN FIELDS<br>This includes construction of drain fields for disposal of effluent from septic tanks. | LF | m | Length of field |
| 19 02 07 | TRENCHBOXES | LF | m | Length of trench |

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| | This includes installation of prefabricated trenchboxes for shoring during installation of piping. | | | |
| 19 02 9X | OTHER SANITARY SEWER<br>Sanitary sewer not described by the assembly categories listed above. | XX | XX | |
| 19 03 | STORM SEWER SYSTEMS<br>This includes construction of storm water collection systems. Storm pond construction is included in 17 03 01 and 18 04 08. | LF | m | Length of system |
| 19 03 01 | STORM SEWER PIPING<br>This includes installation of piping for collection of storm water. | LF | m | Length of piping |
| 19 03 02 | STORM SEWER MANHOLES<br>This includes construction of manholes for storm water collection systems. | EA | EA | Each manhole |
| 19 03 03 | LIFT STATIONS<br>This includes construction of lift stations including piping, pumps, and controls. | GPM | L/s | Operating capacity |
| 19 03 04 | CULVERTS<br>This includes construction and installation of culverts for storm water systems. | LF | m | Length of culvert |
| 19 03 05 | HEADWALLS AND CATCH BASINS<br>This includes construction of headwalls and installation of catch basins for storm water systems. | EA | EA | Each structure |
| 19 03 06 | EROSION CONTROL MEASURES<br>This includes construction to control erosion due to runoff. | SY | m2 | Area to control |
| 19 03 07 | TRENCHBOXES<br>This includes installation of prefabricated trenchboxes for shoring during installation of piping. | LF | m | Length of trench |
| 19 03 9X | OTHER STORM SEWER<br>Storm sewer not described by the assembly categories listed above. | XX | XX | |
| 19 04 | INDUSTRIAL WASTE SYSTEMS<br>This includes all systems for collection of contaminated waste requiring special | LF | m | Length of systems |

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| | treatment. | | | |
| 19 04 01 | INDUSTRIAL WASTE PIPE<br>This includes construction and installation of all piping for collection of industrial waste. | LF | m | Length of piping |
| 19 04 02 | MANHOLES AND CLEANOUTS<br>This includes construction of manholes and cleanouts for industrial waste piping. | EA | EA | Each manhole or cleanout |
| 19 04 03 | LIFT STATIONS<br>This includes construction and installation of industrial waste lift stations and equipment. | GPM | L/s | Operating capacity |
| 19 04 04 | HOLDING TANKS AND SEPARATORS<br>This includes construction or installation of special tanks such as silver recovery tanks or separators such as oil water separators. | EA | EA | Each tank |
| 19 04 05 | TRENCHBOXES<br>This includes installation of prefabricated trenchboxes for shoring during installation of piping. | LF | m | Length of trench |
| 19 04 9X | OTHER INDUSTRIAL WASTE<br>Industrial waste not described by the assembly categories listed above. | XX | XX | |
| 19 05 | HEATING DISTRIBUTION SYSTEMS<br>This includes overhead and underground hot water, steam, and condensate piping. | LF | m | Length of system |
| 19 05 01 | OVERHEAD HOT WATER SYSTEMS<br>This includes installation of overhead hot water supply and return piping. | LF | m | Length of system |
| 19 05 02 | OVERHEAD STEAM SYSTEMS<br>This includes installation of overhead steam supply and condensate return piping. | LF | m | Length of system |
| 19 05 03 | UNDERGROUND HOT WATER SYSTEMS<br>This includes installation of underground hot water supply and return piping. | LF | m | Length of system |
| 19 05 04 | UNDERGROUND STEAM SYSTEMS<br>This includes installation of underground steam supply and condensate | LF | m | Length of system |

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| | return piping. | | | |
| 19 05 05 | TRENCHBOXES<br>This includes installation of prefabricated trenchboxes for shoring during installation of piping. | LF | m | Length of trench |
| 19 05 9X | OTHER HEATING<br>Heating distribution not described by the assembly categories listed above. | XX | XX | |
| 19 06 | COOLING DISTRIBUTION SYSTEMS<br>This includes construction and installation of chilled water distribution systems. | LF | m | Length of system |
| 19 06 01 | OVERHEAD COOLING SYSTEMS<br>This includes installation of overhead chilled water supply and return piping. | LF | m | Length of system |
| 19 06 02 | UNDERGROUND COOLING SYSTEMS<br>This includes installation of underground chilled water supply and return piping. | LF | m | Length of system |
| 19 06 03 | TRENCHBOXES<br>This includes installation of prefabricated trenchboxes for shoring during installation of piping. | LF | m | Length of trench |
| 19 06 9X | OTHER COOLING<br>Cooling distribution not described by the assembly categories listed above. | XX | XX | |
| 19 07 | NATURAL AND PROPANE GAS DISTRIBUTION SYSTEMS<br>This includes piping and storage tanks for propane systems and piping for natural gas systems. | LF | m | Length of system |
| 19 07 01 | GAS DISTRIBUTION PIPING<br>This includes piping for distribution of natural or propane gas. | LF | m | Length of piping |
| 19 07 02 | GAS STORAGE TANKS<br>This includes installation of tanks for propane and natural gases. | GAL | L | Volume of tank |
| 19 07 03 | TRENCHBOXES<br>This includes installation of prefabricated trenchboxes for shoring during installation of piping. | LF | m | Length of trench |

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| 19 07 9X | OTHER GAS DISTRIBUTION<br>Gas distribution not described by the assembly categories listed above. | XX | XX | |
| 19 08 | BUILDING FUEL DISTRIBUTION SYSTEMS<br>This includes installation of piping and storage tanks for building fuels. | GAL | L | Volume of storage |
| 19 08 01 | FUEL DISTRIBUTION PIPING<br>This includes installation of piping for fuel oil distribution. | LF | m | Length of piping |
| 19 08 02 | FUEL STORAGE TANKS<br>This includes installation of buried or above ground fuel oil tanks. | GAL | L | Volume of tank |
| 19 08 03 | FUEL DISPENSING STATIONS | EA | EA | Each station |
| 19 08 04 | TRENCHBOXES<br>This includes installation of pre-fabricated trenchboxes for shoring during installation of piping. | LF | m | Length of trench |
| 19 08 9X | OTHER FUEL<br>Fuel not described by the assembly categories listed above. | XX | XX | |
| 19 9X | OTHER CIVIL/MECHANICAL UTILITIES<br>Any civil/mechanical utilities not covered in the subsystems listed above. | XX | XX | |
| 20 | SITE ELECTRICAL UTILITIES<br>This system includes exterior electrical systems and equipment including sub-stations, overhead and underground distribution systems, metering systems and equipment, exterior lighting, lightning protection systems, com-munication and alarm systems, and cathodic protection. | EA | EA | Systems total |
| 20 01 | SUBSTATIONS<br>This subsystem includes substation equipment and materials required from the primary power source. | KVA | KVA | Total rated capacity |
| 20 01 01 | TRANSFORMERS<br>Electric power transformers used in conjunction with electrical substations. May include pole/tower or pad-mounted | KVA | KVA | Total rated capacity |

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| | transformers. (See 20 02 01 for other transformers.) | | | |
| 20 01 02 | SWITCHGEAR, VOLTAGE REGULATORS AND BUSSBARS<br>Includes all components of switchgear, voltage regulators and bussbars used with electrical substations. (See 20 02 for general switches, controls, and devices.) | EA | EA | Number of separate components |
| 20 01 03 | OVERHEAD ELECTRIC CONDUCTORS<br>Includes conductors used in conjunction with substations. (See 20 02 for general exterior electrical distribution systems.) | LF | m | Length of conductor |
| 20 01 04 | TOWERS, POLES, CROSSARMS AND INSULATORS<br>Towers, poles, crossarms, and insulators used in conjunction with the substation. (See 20 02 for towers, poles, etc., associated with exterior electric distribution systems.) | EA | EA | Number of towers and poles |
| 20 01 05 | UNDERGROUND ELECTRIC CONDUCTORS<br>Includes conductors used in conjunction with substations. (See 20 02 04 for general underground electrical distribution systems.) | LF | m | Length of conductor |
| 20 01 06 | DUCTBANKS, MANHOLES AND HANDHOLES<br>Components used in conjunction with substations. (See 20 02 06 for components used for general underground distribution systems.) | EA | EA | Number of ductbanks and access points |
| 20 01 07 | LIGHTNING ARRESTING SYSTEMS<br>Lightning arresting systems used to protect substations. Lightning arresting systems for buildings, power for distribution, and other electrical systems and subsystems are included with those other systems. | EA | EA | Number of systems |
| 20 01 08 | GROUNDING SYSTEMS<br>Grounding systems used in conjunction with substations. Grounding systems for buildings, power distribution, and other electrical systems and subsystems are included with those other systems. | EA | EA | Number of systems |

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| 20 01 9X | OTHER SUBSTATION<br>Substation not described by the assembly categories listed above. | XX | XX | |
| 20 02 | EXTERIOR ELECTRICAL DISTRIBUTION<br>Exterior electrical transmission and distribution systems including transformers, conductors, switches, controls and other devices, supporting structures, grounding systems, metering and all other equipment required to support electric power distribution projects. | LF | m | Total length of distribution |
| 20 02 01 | TRANSFORMERS<br>Electric power transformers used in conjunction with exterior electrical distribution. May include pole/tower or pad mounted transformers. | KVA | KVA | Total rated capacity |
| 20 02 02 | SWITCHES, CONTROLS AND DEVICES<br>Includes all components for switches, controls and devices for exterior electrical distribution. | EA | EA | Number of devices |
| 20 02 03 | OVERHEAD ELECTRIC CONDUCTORS<br>Includes conductors for overhead exterior electrical distribution. | LF | m | Length of conductor |
| 20 02 04 | TOWERS, POLES, CORSSARMS AND INSULATORS<br>Includes towers, poles, crossarms, and insulators used in exterior electrical distribution. | EA | EA | Number of towers and poles |
| 20 02 05 | UNDERGROUND ELECTRIC CONDUCTORS<br>Includes conductors for underground electrical distribution. | LF | m | Length of conductor |
| 20 02 06 | DUCTBANKS, MANHOLES, HANDHOLES<br>AND RACEWAYS<br>Includes all components used in conjunction with exterior electrical distribution. | EA | EA | Number of ductbanks and access points |
| 20 02 07 | GROUNDING SYSTEMS<br>Grounding systems used in conjunction with exterior electrical distribution. | EA | EA | Number of systems |

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| 20 02 08 | METERING<br>Includes components used in conjunction with exterior electrical distribution. | EA | EA | Number of meters |
| 20 02 9X | OTHER ELECTRIC TRANSMISSION AND DISTRIBUTION<br>Includes components used for transmission and distribution of other exterior electrical distribution. | XX | XX | Number of other components |
| 20 03 | EXTERIOR LIGHTING<br>This subsystem includes transformers, conductors, poles, lights, ductbanks, grounding systems, and all other equipment required for exterior lighting. | SY | m2 | Area of lighted space |
| 20 03 01 | TRANSFORMERS<br>Includes transformers, pole/tower, or pad-mounted used in conjunction with exterior lighting. | KVA | KVA | Total rated capacity |
| 20 03 02 | OVERHEAD ELECTRIC CONDUCTORS<br>Includes conductors used for overhead electrical distribution in conjunction with exterior lighting. | LF | m | Total length of conductor |
| 20 03 03 | TOWERS, POLES, CROSSARMS AND INSULATORS<br>Includes tower, poles, crossarms, and insulators used in conjunction with exterior lighting. | EA | EA | Number of towers and poles |
| 20 03 04 | UNDERGROUND ELECTRIC CONDUCTORS<br>Includes conductors used for underground electrical distribution in conjunction with exterior lighting. | LF | m | Total length of conductor |
| 20 03 05 | DUCTBANKS MANHOLES AND HANDOLES<br>Includes all components used in conjunction with exterior lighting. | EA | EA | Number of ductbank and access points |
| 20 03 06 | EXTERIOR LIGHTING FIXTURES AND CONTROLS<br>Includes fixtures, controls, and all components used in conjunction with exterior lighting. | EA | EA | Number of fixtures |
| 20 03 07 | GROUNDING SYSTEMS<br>Grounding systems used in conjunction | EA | EA | Number of systems |

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| | with exterior lighting. | | | |
| 20 03 08 | SPECIAL SECURITY LIGHTING SYSTEMS<br>Includes all components used for special security lighting. | EA | EA | Number of systems |
| 20 03 9X | OTHER AREA LIGHTING<br>Includes components and equipment used for area lighting. | XX | XX | |
| 20 04 | EXTERIOR COMMUNICATIONS AND ALARM<br>SYSTEMS<br>This subsystem includes cables, duct-banks, manholes, and all other equip-ment required to support exterior communication and alarm systems. | LF | m | Total length of distribution |
| 20 04 01 | TELEPHONE SYSTEMS<br>Includes all components, cables, and equipment used in conjunction with exterior telephone systems. | LF | m | Total length of distribution |
| 20 04 02 | SOUND SYSTEMS<br>Includes all components, cables, and equipment used in conjunction with exterior sound systems. | LF | m | Total Length of distribution |
| 20 04 03 | FIRE ALARM SYSTEMS<br>Includes all components, cables, and equipment used in conjunction with exterior fire alarm systems. | LF | m | Total length of distribution |
| 20 04 04 | CABLE TV SYSTEMS<br>Includes all components, cables, and equipment used in conjunction with exterior cable TV systems. | LF | m | Total length of distribution |
| 20 04 9X | OTHER COMMUNICATION AND ALARM<br>Includes all components, cables, and equipment used in conjunction with other special communication and alarm systems not defined above. | XX | XX | Total length of distribution |
| 20 05 | EXTERIOR SECURITY SENSORS AND TV<br>MONITORING SYSTEMS<br>This system includes cables, ductbanks, manholes, poles, cameras, monitors, and all components used in conjunction with exterior monitoring systems. | STA | STA | Number of monitor and view stations |

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| 20 05 01 | CABLES AND WIRING<br>Includes cables, wiring, and equipment used in conjunction with exterior security systems. | LF | m | Total length of conductors |
| 20 05 02 | DUCTBANKS, MANHOLES AND HANDHOLES<br>Includes ductbanks, manholes, and hand-holes used in conjunction with exterior security systems. | EA | EA | Number of ductbank and access points |
| 20 05 03 | TOWERS, POLES AND STANDS<br>Includes towers, poles, stands, and equipment used in conjunction with exterior security systems. | EA | EA | Number of towers, poles and stands |
| 20 05 04 | TV CAMERAS AND MONITORS<br>Includes cameras, monitors, and components used in conjunction with exterior security systems. | EA | EA | Number of cameras and monitors |
| 20 05 05 | GROUNDING SYSTEMS<br>Grounding systems used in conjunction with exterior security systems. | EA | EA | Number of systems |
| 20 05 9X | OTHER SECURITY SYSTEMS<br>Includes all components and equipment used in conjunction with special security systems not defined above. | XX | XX | Number of systems |
| 20 06 | CATHODIC PROTECTION<br>This system includes sacrificial anodes, induced current conductors, and components used in conjunction with cathodic protection. | LF | m | Length of conductor |
| 20 06 01 | SACRIFICAL ANODE SYSTEM<br>Includes all components required in conjunction with sacrificial anode system. | EA | EA | Number of anodes |
| 20 06 02 | INDUCED CURRENT SYSTEM<br>Includes conductor and termination required for cathodic protection. | LF | m | Length of conductor |
| 20 06 9X | OTHER CATHODIC PROTECTION<br>Includes components and equipment used in conjunction with other cathodic protection systems not defined above. | XX | XX | Number of systems |
| 20 9X | OTHER ELECTRICAL UTILITIES | XX | XX | |

This system includes devices, supporting structures, equipment, and all components required to support special electrical utilities.